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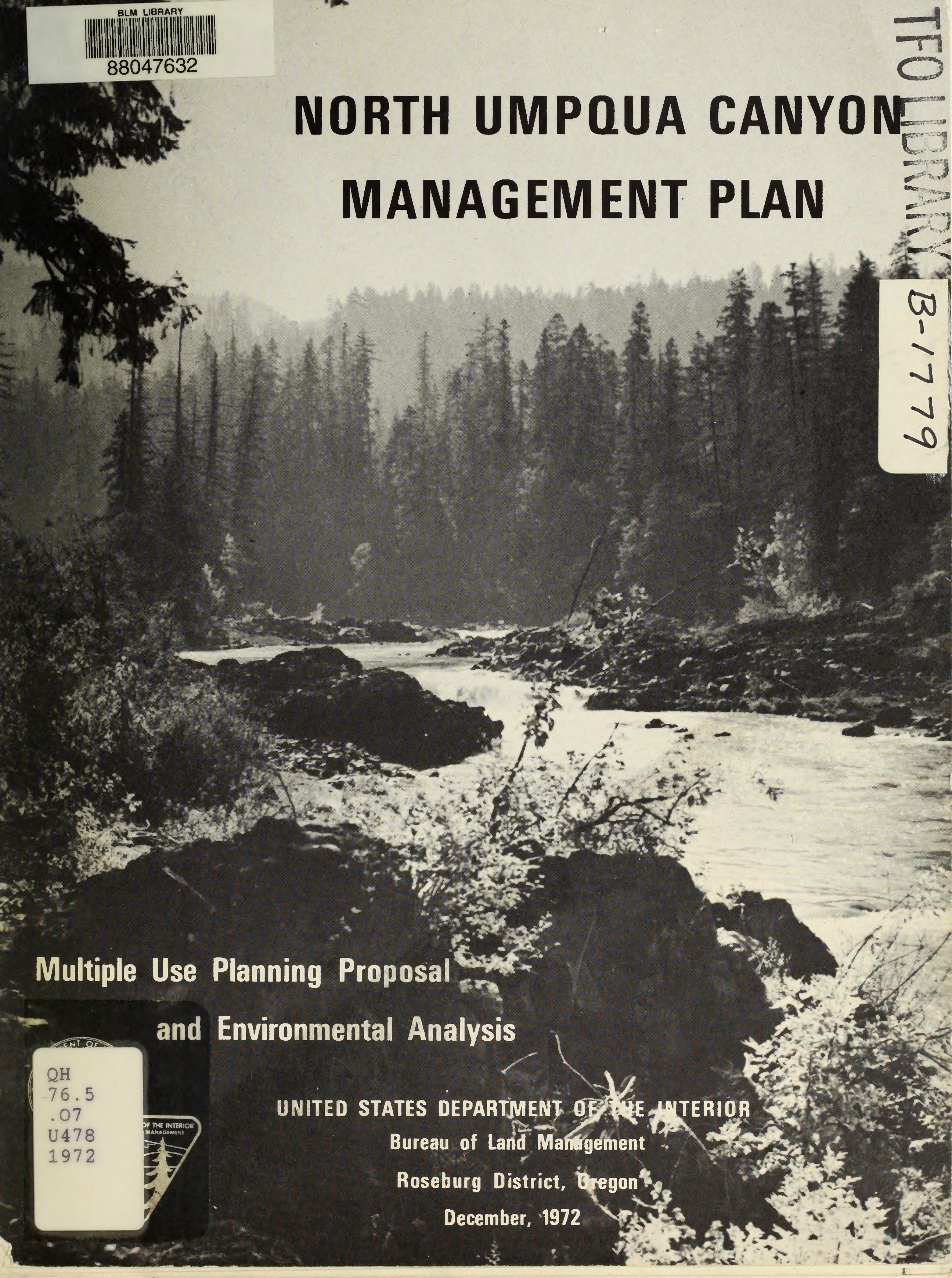
NORTH UMPQUA CANYON MANAGEMENT PLAN



Multiple Use Planning Proposal and Environmental Analysis

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UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management
Roseburg District, Oregon
December, 1972

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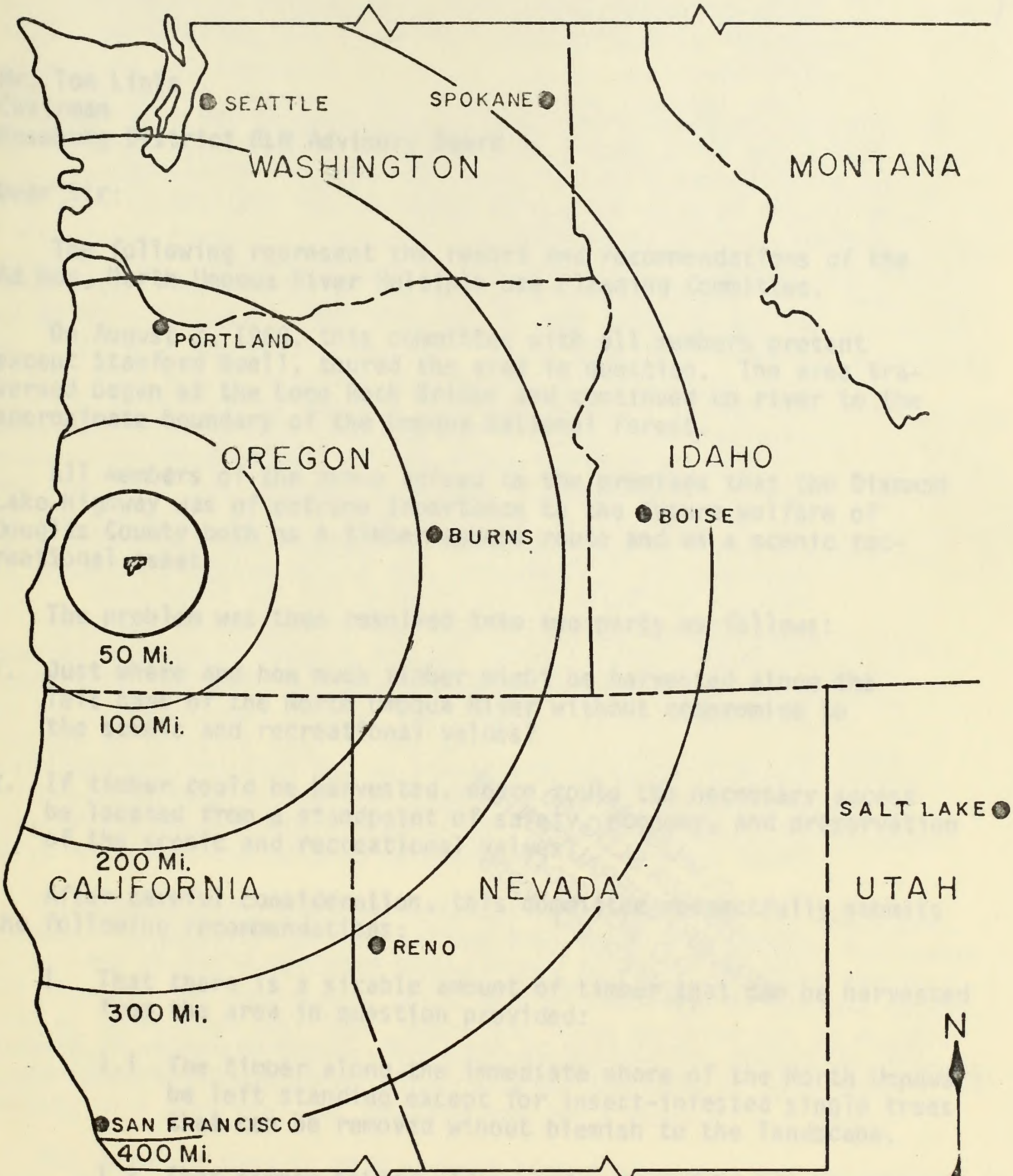
BUREAU OF LAND MANAGEMENT

U.S. DEPARTMENT OF THE INTERIOR



LOCATION MAP

▨ NORTH UMPQUA CANYON MANAGEMENT PLANNING PROPOSAL AREA

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August 13, 1968

Mr. Tom Links
Chairman
Roseburg District BLM Advisory Board

Dear Sir:

The following represent the report and recommendations of the Ad Hoc, North Umpqua River Multiple Use Planning Committee.

On August 2, 1968, this committee with all members present except Stanford Buell, toured the area in question. The area traversed began at the Lone Rock Bridge and continued up river to the approximate boundary of the Umpqua National Forest.

All members of the group agreed to the premises that the Diamond Lake Highway was of extreme importance to the future welfare of Douglas County both as a timber access route and as a scenic recreational asset.

The problem was then resolved into two parts as follows:

1. Just where and how much timber might be harvested along the left bank of the North Umpqua River without compromise to the scenic and recreational values?

2. If timber could be harvested, where could the necessary access be located from a standpoint of safety, economy, and preservation of the scenic and recreational values?

After careful consideration, this committee respectfully submits the following recommendations:

1. That there is a sizable amount of timber that can be harvested from the area in question provided:
    - 1.1 The timber along the immediate shore of the North Umpqua be left standing except for insect-infested single trees that can be removed wihout blemish to the landscape.
    - 1.2 That timber behind ridges and not visible can be removed by careful logging with roads and landings concealed from view of the highway and that some trees can be removed from ridge tops where the ground is behind standing timber.

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1.3 That every effort be made to protect water quality and other ecological factors by not logging close to the banks of feeder tributaries, not yarding in or across streams or leaving debris where it will contaminate streams.

2. The best route of access would be by constructing a bridge across the North Umpqua just below the mouth of Rock Creek. It was believed that this area, now somewhat developed, would not be materially down-graded by the addition of another tastefully designed bridge.

   2.1 Careful attention would need to be given to the alignment of the approach road on the left bank to prevent damage to the landscape.

   2.2 Routes for the logging road, both East and West paralleling the left bank of river, will need skillful location to minimize noise and dust hazards to the scenic atmosphere.

   2.3 Douglas County should be encouraged to purchase, by condemnation if necessary, the narrow wedge of land between the North Umpqua Highway and the river bank west of the mouth of Rock Creek in Section 1, Township 26 South, Range 3 West, for the purpose of eventually widening the highway and to prevent detrimental private development.

   2.4 The BLM should be encouraged to dedicate and eventually improve the lands along the right and left banks of the North Umpqua in Sections 1 and 12, Township 26 South, Range 3 West, for recreational purposes.

   2.5 The BLM should consider, in cooperation with Douglas County and other land owners, a river level trail along the left bank to connect with existing trail in the Umpqua National Forest.

This committee, consisting of Tom Clark, Stanford Buell, Ab Rice, and Charles Collins, unanimously concur in the above recommendations.

(Signed)
Charles S. Collins
Chairman

PREFACE

Oregon is a land of many resources, generously endowed, yet finite in the end. Competition for allocative use of wildland resources is strong and likely to increase in time. Economic, sociologic and ideologic inputs all vie for dominance in the decision-making process. Dollar values are somewhat readily attached to items in the economic arena and decisions made based on relative costs, maximization of dollar returns or some other such comparative basis. "Values" attendant in the sociological function are also recognized. Social needs of man for natural beauty, open land, establishment of personal reference points, relief from everyday professional pressures and so on are well known. Whether they result from a positive attraction for the natural environment or a rejection of urban environment, they have one common point - they are difficult to impossible values to quantify. Money spent on recreation equipment, trips, fees and so on gives indications of recreation's relative utility value, but no way has been developed to deal with the intangible benefits. The Pacific Coast salmon fishery, for example, has an annual commercial value of $120 million. Twelve to 15 million pounds of salmon and steelhead are taken by sportsmen annually and they spend $200 million in the process. Exactly what value can be ascribed to the self-satisfaction, relaxation, and self-renewal garnered by these collective sportsmen? It is intangible and therefore indeterminate but no less real.

Consider for a moment, the competitive forces operating to gain control of a tree. Nature demands it for its role in the natural ecosystem. In life, sheltering and feeding wildlife, functioning in the oxygen-carbon dioxide and nitrogen cycles, and in death, it becomes an integral part of the soil. For a tourist, it may pass unnoticed or it may be the very object which drew him there in the first place - seeking natural beauty or the self-renewal spoken of earlier. A local resident may value it for the pleasant environment which motivated him to live in the area.

In counterpoint, the same tree may represent a job and therefore, freedom from anxiety for another local resident. To another individual or family, living in another region, that tree may represent boards and plywood - an opportunity for a home of their own or perhaps escape from an urban slum dwelling. Americans being anything but an ascetic society, form by the legion in creating a demand for disposable diapers, bags, packaging, newspapers, toys, housing and gadgets, thus they compete in a very real but detached way for a share of our trees.

The Roseburg area is 99.4 percent timber dependent and any major dislocations in the timber base would have inevitable repercussions throughout the economy. Involved on the south bank of the river alone, in BLM timber, is roughly one year's annual cut allowance. Foregoing this offered volume on a short term would have obvious impacts locally and regionally. Spreading it over a rotation period would have less obvious but none-the-less telling impacts on the economy. Competition for this tree is intensive as can readily be seen. On what basis shall its role be decided?

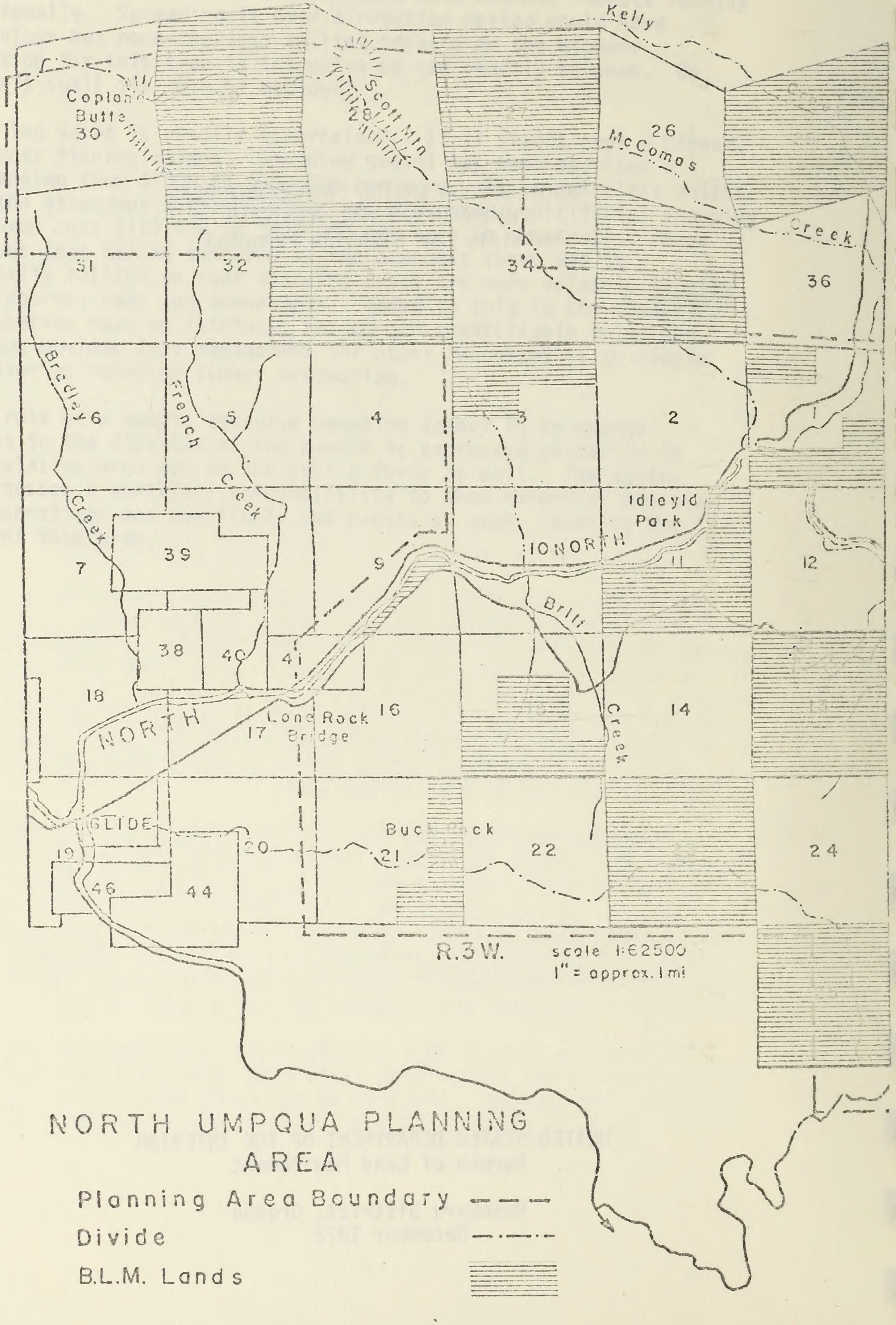
Its log value is readily ascertained. If it stands over a stream, it protects fishing values. Spawning gravel has been ascribed a value ranging from $1000 to $350,000 per acre. It is valueless unless it and the attendant stream habitat are protected. Artificial spawning gravel beds cost $120,000 to $470,000 per acre to construct. These are values that can be compared in the economic sense and it occasionally tallies up that standing trees are more valuable *in situ* than as boards, bags and newspapers. Added to this is the concept that esthetics have an intrinsic though non-quantifiable value and it becomes obvious that management for other resources is as viable an endeavor as managing timber production.

The role of a public resource managing agency is to manage according to the dictates of the people as expressed primarily in the legislative area but in the public forum as well. The agency also possesses a corollary responsibility to show potential management alternatives and the likely end result of each. Such is the purpose of this plan.

NORTH UMPQUA CANYON MANAGEMENT PLAN
AND ENVIRONMENTAL ANALYSIS
Multiple Use Planning Proposal

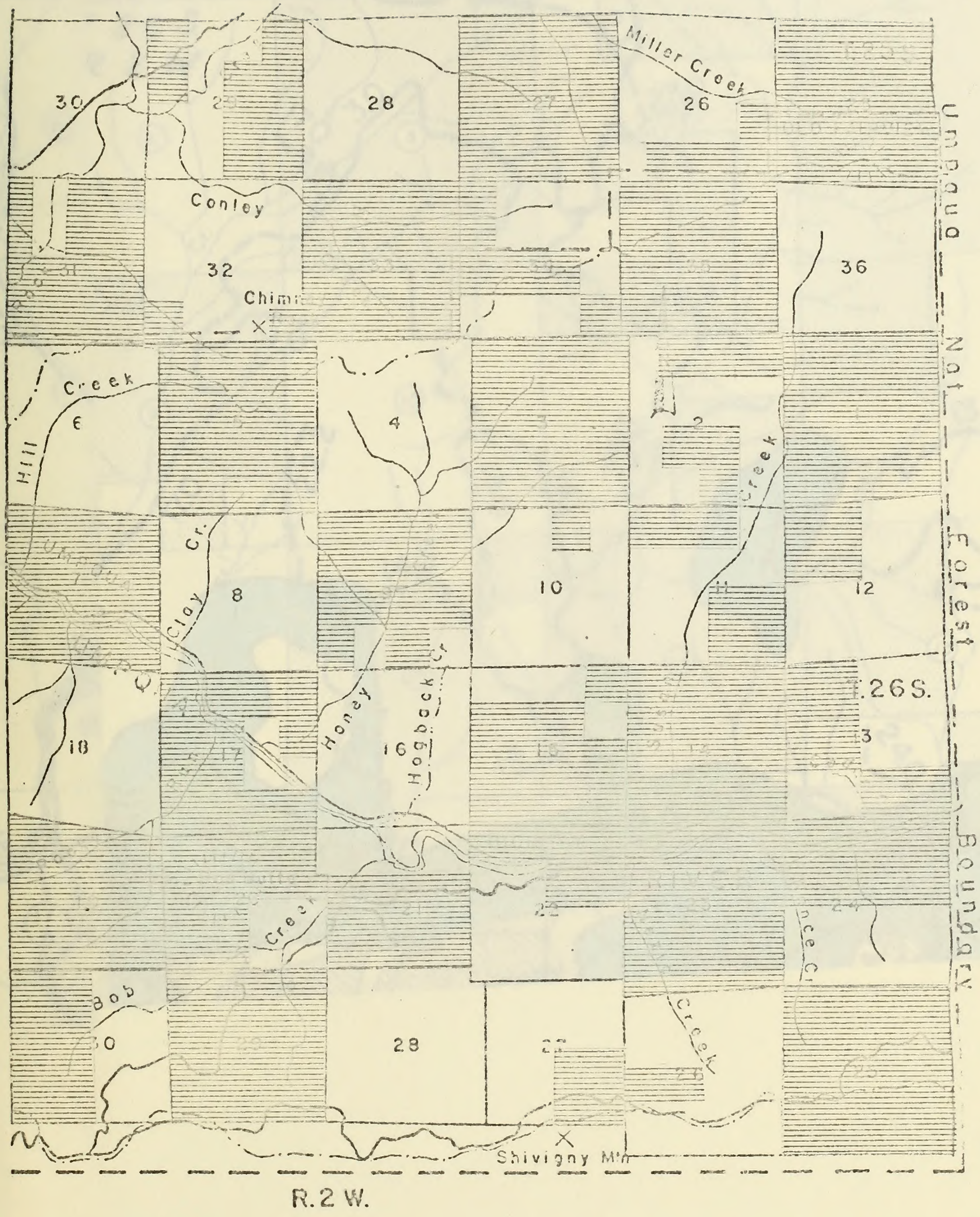
UNITED STATES DEPARTMENT OF THE INTERIOR
Bureau of Land Management

Roseburg District, Oregon
December 1972



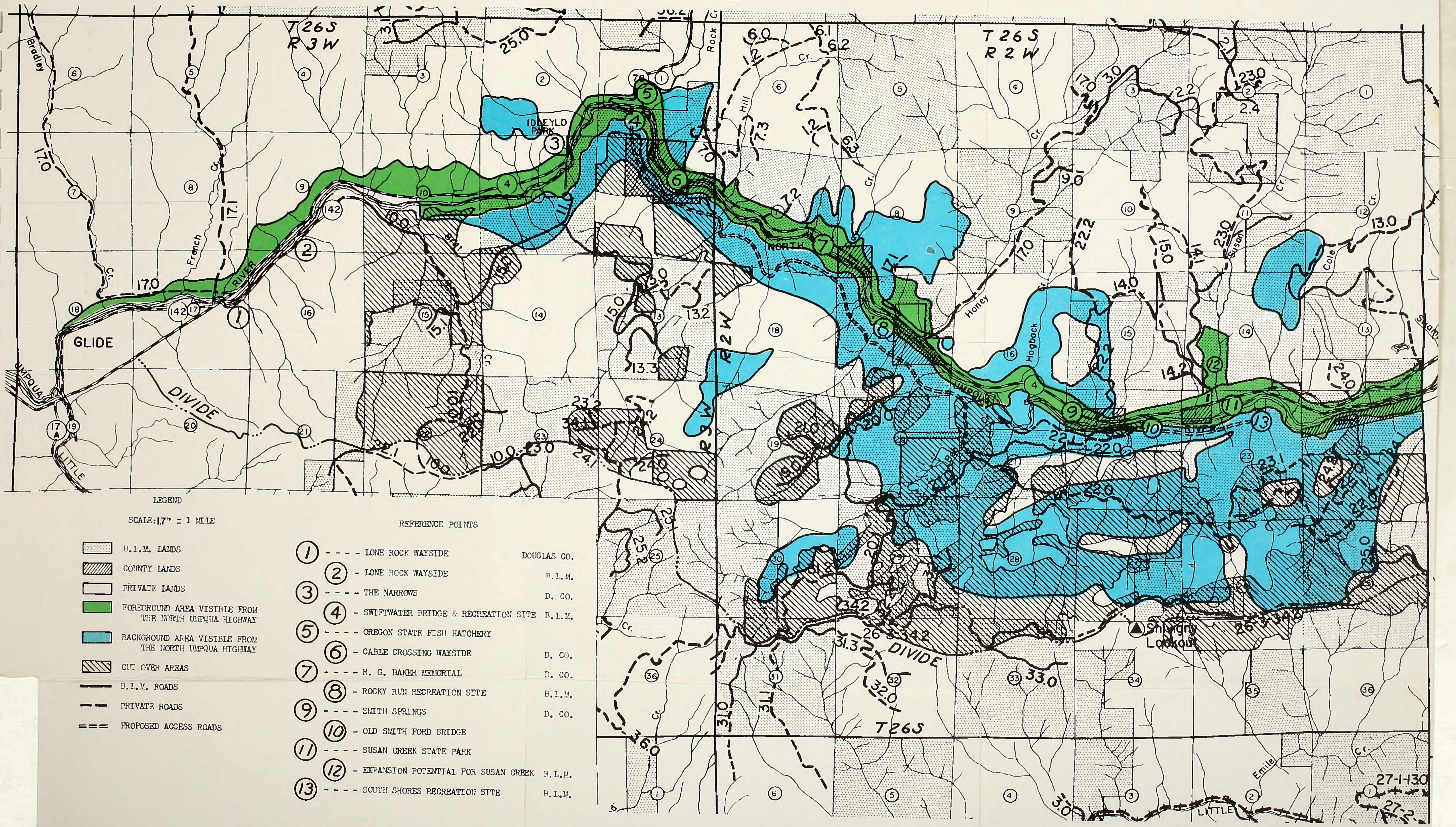
NORTH UMPQUA PLANNING AREA

Planning Area Boundary — — —
Divide —·—·—
B.L.M. Lands ▤


30
29
28
27
26
Miller Creek
Umpqua Nat Forest Boundary
Conley
32
36
Chimn
Creek
Hill
6
4
2
Creek
Clay
Cr.
8
10
11
12
T.26S.
18
17
Honey
16
Hogback Cr.
13
22
Creek
Bob
30
28
Creek
Shivigny Mtn
R.2 W.

NORTH UMPQUA PLANNING AREA

1972



LEGEND

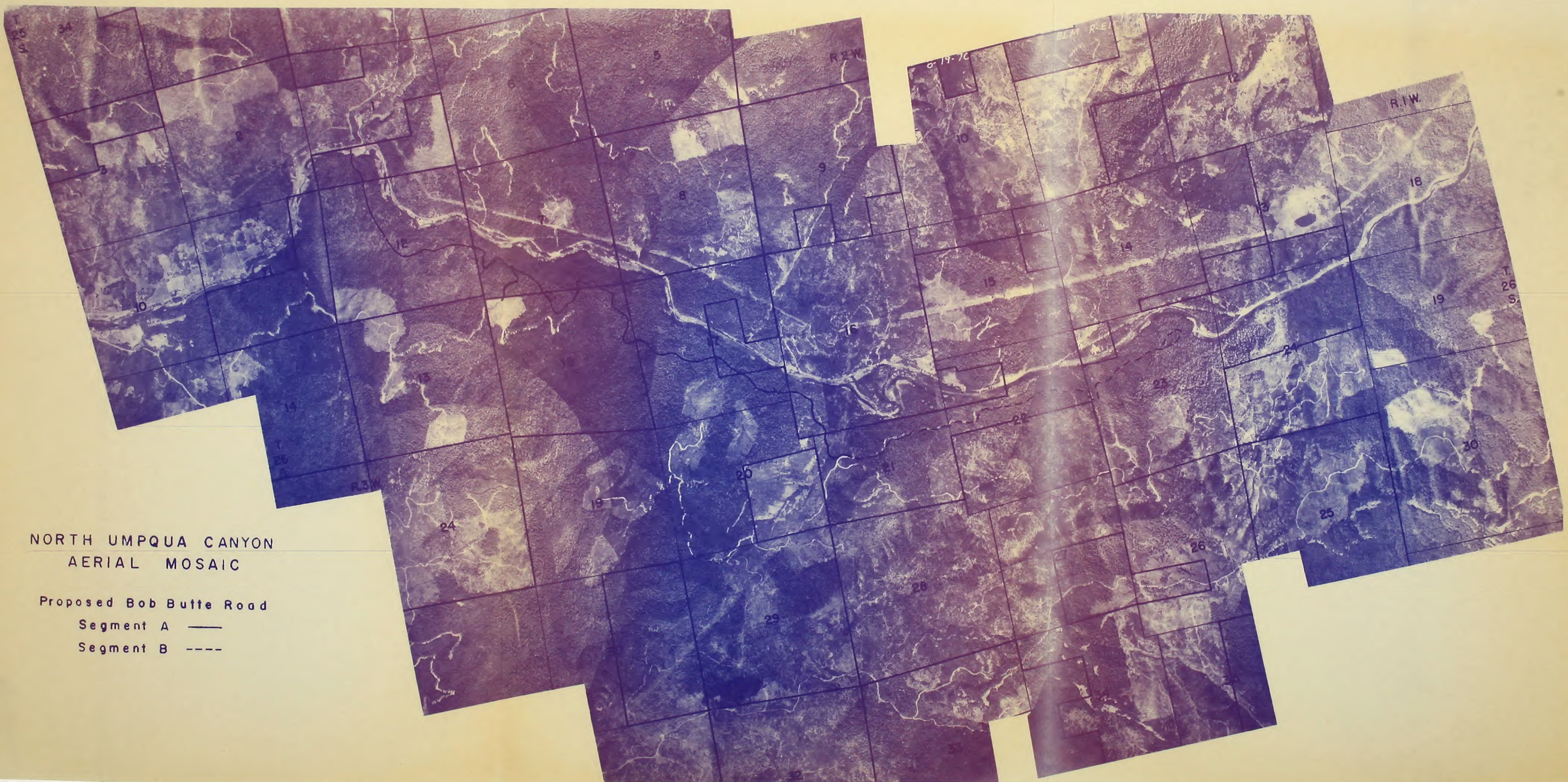
SCALE: 1.7" = 1 MILE

- ▨ B.L.M. LANDS
- ▨ COUNTY LANDS
- ☐ PRIVATE LANDS
- 🟩 FOREGROUND AREA VISIBLE FROM THE NORTH UMPQUA HIGHWAY
- 🟦 BACKGROUND AREA VISIBLE FROM THE NORTH UMPQUA HIGHWAY
- ▨ CUT OVER AREAS
- ——— B.L.M. ROADS
- — — PRIVATE ROADS
- ═══ PROPOSED ACCESS ROADS

REFERENCE POINTS

①	LONE ROCK WAYSIDE	DOUGLAS CO.
②	LONE ROCK WAYSIDE	B.L.M.
③	THE NARROWS	D. CO.
④	SWIFTWATER BRIDGE & RECREATION SITE	B.L.M.
⑤	OREGON STATE FISH HATCHERY	
⑥	CABLE CROSSING WAYSIDE	D. CO.
⑦	R. G. BAKER MEMORIAL	D. CO.
⑧	ROCKY RUN RECREATION SITE	B.L.M.
⑨	SMITH SPRINGS	D. CO.
⑩	OLD SMITH FORD BRIDGE	
⑪	SUSAN CREEK STATE PARK	
⑫	EXPANSION POTENTIAL FOR SUSAN CREEK	B.L.M.
⑬	SOUTH SHORES RECREATION SITE	B.L.M.

NORTH UMPQUA MANAGEMENT PLAN MAP



NORTH UMPQUA CANYON
AERIAL MOSAIC

Proposed Bob Butte Road

Segment A ——

Segment B ----

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INTRODUCTION

STATEMENT OF PURPOSE AND OBJECTIVES

Purpose

The purpose of this report is to detail the management plan for lands administered by the Bureau of Land Management located adjacent to the North Umpqua River. By this means, public evaluation and comments may be had which may provide valuable inputs to the plan. Suggestions from interested individuals, organizations and agencies should be sent to the District Manager, Roseburg District, P. O. Box 1045, Roseburg, Oregon 97470.

The North Umpqua is a nationally important resource which certainly gives it high ranking in importance to Oregonians. The high value of its steelhead fishery and scenic beauty is inarguable. Lack of access to the south bank of the river has occupied the attentions of many since the Smith Ford Bridge was destroyed in the 1964 flood and re-establishment of such access provides the main thrust of emphasis for this plan.

A multitude of individuals and organizations have been contacted for discussion of the access and recreation proposals contained herein. Some of these are: Governor Tom McCall, Kessler Cannon - Executive Assistant to the Governor for Natural Resources, Robert Davis - Executive Assistant to the Governor, State Representatives Robert Stults and William Markham, Douglas Forest Protective Association, Douglas Timber Operators, Glide Community Club, Glide Kiwanis, Winston Dillard Kiwanis, Roseburg Kiwanis, Izaak Walton League - Umpqua Chapter, Lions Club - Roseburg Chapter, North Umpqua Planning Committee (Frank Moore, Lea Riley, Mr. Rogers, Alan Knudtson, Ray Miller, Helen Glenn, Mrs. Hallock, Jack Price), Roseburg Chamber of Commerce, Sutherlin Chamber of Commerce, Umpqua Gem and Mineral Club, Umpqua Timber Cruisers 4-Wheel Drive Club and the Society of American Foresters - Umpqua Chapter. Others have been contacted in regard to a visitor information center proposal in connection with the Swiftwater Recreation Development. These are: Oregon State Game Commission, Izaak Walton League, Douglas County Recreation Department, Steamboaters, U.S. Forest Service and Weyerhaeuser Company. As the planning proposals began to jell, these earlier abbreviated versions were made available to Oregon Senator Bob Packwood and U. S. Representative John Dellenback.

With staking substantially completed on the proposed Bob Butte Road location, many individuals who had earlier expressed an interest were invited to walk the road location to get a first-hand view.

Those who accepted are listed:

Everett Johnson, Chairman, Roseburg District Advisory Board, C. & D. Lumber Co.

Tom Worden, Roseburg District Advisory Board Member, Broadcaster, KRSB

Fred Sohn, Roseburg District Advisory Board Member, Sun Studs, Inc.

Charles S. Collins, Pacific West Represntive, Izaak Walton League of America

Robert Sherman, Chairman, Umpqua Chapter IWLA

Richard Gilman, IWLA

Stanley Knouse, President, Steamboaters

Ralph U. Grenfell, Assistant Supervisor, S.W. Region Oregon State Game Commission

Jerry Bauer, Biologist, OSGC

Jim Fosback, Dillard Lumber Co.

Alan Knudtson, Roseburg Jeweler

George Webster, D. R. Johnson Lumber Co. Forester

Frank Moore, Proprietor, Steamboat Inn

Dorothy Terry, Resident, North Umpqua Highway

Paul Nolte, Roseburg Attorney

Larry Williams of the Oregon Environmental Council was shown the planning area and briefed on the plan's content on an earlier field trip.

The Roseburg District Advisory Board was presented with the plan and the majority of the revisions suggested by their reviewing subcommittee have been incorporated into this planning report. The Advisory Board has approved the plan as contained herein.

The Planning area encompasses approximately 34,000 acres of intermingled corporate, individual, and public ownerships. Forty-eight percent of this land is in BLM ownership with the largest portion of it being revested Oregon and California Railroad Grant lands. Management of the lands involved, therefore, is governed primarily by the policies set forth in the O&C Act of 1937. (See Appendix, pages 115-117)

Public Domain lands are managed in accordance with the Taylor Grazing Act, Classification and Multiple Use Act, Mineral Leasing Act and others. Other acts, regulations, and Executive Orders apply but only the major ones have been identified.

Objectives

The objective of this plan is to manage and develop these lands for all multiple-use values extant within legislative, regulatory, and policy constraints and to maintain in the immediate environment of the river, an essentially natural appearance.

Basically the plan seeks to maintain consistency with:

1. Provision of a wide range of quality recreation experiences

Extensive areas will be re-opened for those who like to drive, hike, or seek solitude. Some areas, suitable for development, will be provided with facilities for overnight camping, picnicking, and other intensive or facility-oriented recreational pursuits. No direct vehicle access to the river will be provided or permitted.

2. Wildlife Enhancement

Access will provide a greater harvest of big game animals. Most suitable habitat has grown up to the point that it is rapidly declining in value to deer and elk. Opening up some areas and the planting of browse species will upgrade and preserve this resource. Other birds and animals will be preserved by identifying and protecting their nesting trees and dens.

3. Protection and Enhancement of the North Umpqua Fishery

Maintenance of the present high-quality aquatic habitat is of paramount importance on the North Umpqua. Management practices are geared to the preservation of this resource.

4. Watershed Protection and Soil Conservation

Basic to the retention of a viable resource base, salmonid fishery and general quality of the environment is the stabilization and protection of the soil mantle. Concomitant with this is the control and production of cool, high-quality water.

5. Timber Production

Timber will be produced from these lands in a manner which is consistent with other resource considerations.

6. Environmental Conservation

All resource uses occurring on these federal lands will, in the total picture, be consistent with the protection of environmental quality. This does not exclude single use of specific areas such as timber harvest areas or recreation sites which will result in greater or lesser alteration of local ecosystems. Such allocation of specific areas to single uses is consistent with multiple-use principles as all uses cannot obviously occur simultaneously on the same acre of ground. Taken as a whole, however, each activity or use will be designed to have minimal impact on the esthetics and general quality of the environment. Where opportunities exist, current shortcomings will be improved or corrected.

7. Fire and Insect Protection

Existing access to the south portion of the plan area is spotty and difficult. Long periods of time will elapse for initial attack on wildfires. Risk is high for both man-caused and natural fire. Fishermen cross the river to try new water and lightning occurrences would be extremely difficult to control because of time and no access to the lower areas adjacent to the river. Insect and disease outbreaks will be impossible to arrest if commercial access is unavailable.

8. To Secure the Cooperation of Others

Fishing and hunting are controlled by the Oregon State Game Commission. Douglas County and other organizations are interested and concerned with the management and development of this region. Intermingled private land owners will be enabled to benefit by seeking uses for their land which are compatible or complementary to those uses planned for adjacent federal lands.

GENERAL DESCRIPTION OF THE AREA

GENERAL DESCRIPTION OF THE AREA

History of the Region

The first known habitation by humans of the region was by the Umpqua Indians whose occupancy is thought to have commenced sometime after the fourteenth century. It is thought that they were driven from the mid-continent area by drought. With the arrival of the Umpquas, game trails were taken over and modified by the nomadic Indians on their way to and from hunting, fishing, and berry picking areas. Fur traders may have entered the Umpqua drainage in 1812, but only occasional whites passed through until settlers began arriving in some numbers in the 1840's and 50's. Little use was made of the trails upriver by whites until gold was discovered just over the Umpqua Divide in the Bohemia Country in 1860. Interest in the route grew and Aaron Rose commissioned Lt. Williams to survey a road route extending from Roseburg up the North Umpqua to the Dalles and California trail. Williams reported that, while a good pack trail was feasible by relocating portions of the old trail around bad areas, no wagon road could be built. And so it remained for a hundred years, access only by trail above Rock Creek. In the later decades of that span, a winding gravel road dictated by the narrow canyon was built extending through Steamboat. By 1925, the U. S. Forest Service had completed a road to Diamond Lake and a one-way, nine-foot road connected Steamboat downstream areas by 1926. It wasn't until 1955 that a paved all weather road was initiated and completed by 1964. When the North Umpqua Highway, as it became known, succeeded in tying Highway 97 (the Dalles and California Trail), Diamond Lake and Roseburg together, it ended a century of effort expended to construct it.

Indians, miners, and mountain men used the primitive trails up the river in the early days while the Glide area slowly grew with the influx of homesteaders and Donation Land Claimants. Small enclaves of settlers sprang up in Rock Creek, Little River, and Glide, but nowhere did the population attain high levels. People from the valley farms and ranches went up the river to hunt and pan gold, while loggers cut small amounts of sugar pine and Douglas-fir. Chinese were relatively numerous at times, prospecting for gold in the river canyon.

With the subsidence of the land settlement and mining boom, the population changed slowly both in composition and numbers. Small communities and enclaves died as the offspring of original settlers moved away. Remnants of the old families still provide the framework of the citizenry in the Glide area. Many land ownerships still carry the names of the older settlers. Ties to this very beautiful region are strong and emotion coupled with nostalgia is understandable present.

Lavola Bakken, a local writer, in the Lone Rock Free State sums up the feeling very well in the following excerpt:

> "The younger generation usually emigrates from Lone Rock Free State, or so it seems at first. They leave as soon as they are old enough for college, space-age jobs, or military service, but somehow the pull of the home places stays with them. In their forties they come back and buy an acre or two and in their fifties and sixties they return to the North Umpqua to stay. Ask them if this is the best place they've ever been, and like as not they'll tell you it's the only place to be. It's part climate, part good neighbors, part heritage, but most of all -- it's home."

Home has been invaded, for mixed amoung all of the wandering sons and daughters who have returned are people from other regions and states who have more-or-less recently also discovered the attributes of living, working, and retiring in the Glide area.

Description

The North Umpqua River lies in south-central, western Oregon. It drains an area from the Cascade Crest in the Diamond Lake area to its confluence with the South Umpqua at River Forks some five miles northwest of Roseburg. The planning area encompasses that portion of the watershed which is directly tributary to the river beginning in the Glide area and extending to the National Forest boundary. It excludes the major tributary, Rock Creek. The planning area boundaries are delineated in Illustration No. 1.

Physiography

The river emanates from the deep pumice soils of the high Cascades. The planning area is located in the lower or western Cascades, an older eroded range of mountains. It is deeply entrenched in a canyon from which it emerges in the vicinity of Lone Rock.

Climate

The climate of the study area is borderline marine-continental. Summers are warm and dry with cool, very wet winters. Precipitation normally ranges from 48" annually at Glide to 56" at the forest boundary. Seasonable distribution is such that 94% of the total average annual precipitation occurs in the period of October through May with the heaviest accumulations occurring in the October - March period.

Snow predominates at the higher elevations with constant snow cover occuring in many years during the winter months. Lower elevations adjacent to the river receive alternating rain and snow with snow cover seldom attaining any significant depth or tenure.

Pacific impulses generally dominate the winter weather and a somewhat maritime climate prevails. Significant numbers of fog-free days show a more continental influence when compared with Roseburg and points further west.

Occasionally, thunderstorms contribute some summer precipitation with their frequency increasing easterly and with altitude.

Low humidities prevail through July, August, and September. These are accentuated by incursions of dry air from the high desert east of the Cascades. This air flow affects the higher more easterly peaks fairly often and occasionally penetrates the canyons. Morning canyon winds occur in the summer. Prevailing winter winds are from the southwest.

Pleasant outdoor recreation weather prevails from about mid-June to September when some rain may occur, but these rainy periods are usually followed by another month or so of Indian summer.

Spring weather will run the entire gamut of cold extended rains to hot summer-like days.

Topography

Elevation ranges from 695' at Glide to approximately 3800' on the west shoulder of Thunder Mt. and 4030' at Scott Mt. Flat land adjacent to the river is at a premium from Lone Rock east and occurs on old river terraces and benches as well as some flatter ridgetops somewhat away from the river. The remainder of the region ranges from relatively flat in areas such as Susan and Honey Creeks to extremely steep in other portions.

Soils

Soils can be generally described as typically woodland soils for the Western Cascades. Upland soils are stoney and migrating downhill at a geologic rate. Broad rounded ridgetops, gentle sideslopes and old river terraces generally contain reddish clays which are stable in such situations. In rare instances, these soils appear in pockets on steep slopes and tend to be unstable there. A relatively high incidence of naturally unstable spots in this area is attributable to a brown loam which occurs on narrow ridges and steep sideslopes. It has a fairly restricted distribution, however, and potential problems which it presents can be adequately dealt with by either avoiding or stabilizing these in road location and construction. A more detailed soil survey appears in the appendix on page 119.

Geology

The planning area includes portions of two physiographic provinces, the Western Cascades and the South Coast Range. The rocks are almost entirely igneous in nature. They range in age from 14 million to 58 million years and largely consist of andesitic tuffs and flows. Some basalts and some intrusives appear. Most of these strata are within the Little Butte Formation and a few lie within the Coalestin Formation.

Ownership

There are approximately 34,000 acres in the planning area. The land is nearly equally divided between public and private ownership. Approximately 17,440 acres are in private ownership, 16,218 acres are administered by the Bureau of Land Management, 389.33 acres are owned by Douglas County and the State of Oregon possesses 56.5 acres in the vicinity of Susan Creek State Park.

Watersheds

The North Umpqua River is, of course, the most important watercourse in the planning area. Measured from Rangeline 1 West, W.M., to the west line of Sec. 16, T. 26 S., R. 3 W. (vicinity of Lone Rock Bridge), the river stretches 13 miles. It enters the area at approximately 926' elevation and crosses the 680' contour less than 1000' west of the Lone Rock Bridge.

Most of the streams draining this area are short with high gradients and low volume flows. They drain small watersheds and many are ephemeral or seasonal. The larger, more important perennial streams are Bradley Creek, Britt Creek, French Creek, Honey Creek, Susan Creek, and Bob Creek. It is these streams which have fishery potential. They produce low flows, particularly in the summer and their effect both individually and cumulatively on the main stem water temperature is negligible. The remaining streams support no resident trout or anadromous fish.

Flora and Fauna

Natural vegetation in the area is dominated by Douglas-fir with an admixture of hemlock and grand fir. Western redcedar, incense cedar, sugar and ponderosa pines, and Pacific yew, round out the conifers. Hardwoods include bigleaf and vine maple, myrtle wood, madrone, chinkapin, dogwood, oaks, several species of willow, and red alder.

Smaller species comprising the lower shrub level are salal, varnish leaf ceanothus, manzanita, several varieties of blackberry, ocean spray, wild lilac and thimbleberry. Several dozens of members of the composite family thrive in old clearcuts along with fireweed and iris. In shady places, columbine, ginger, oxalis, trillium, calypso orchid, coralroot, pine drops, bleeding hearts, violets and hounds tongues grow. Sword ferns, bracken ferns, mosses and numerous fungi round out the list as well as numerous grass species. This is of necessity only a partial listing of vegetation.

Animals in the area include black bear, cougar, coyote and bobcat as the large predators with the larger ungulates being the Columbia blacktailed deer and Roosevelt elk. Squirrels, chipmunks, foxes, weasels, skunks, raccoons, mice and pack rats are common. Beaver and river otter also inhabit the area.

Many of the smaller birds are represented such as warblers, nuthatches, creepers, wrens and sparrows, robins, jays, thrushes, ouzels, and kingfishers. Large birds are pheasant, valley quail, ruffed and blue grouse, bandtail pigeons, ravens, crows, many hawks of all sizes (the redtail being the common large one), turkey vultures and golden eagles. Ducks are not common but are present.

Numberous invertebrates occur, the most important economic species being the Douglas-fir beetle (Dendroctonus pseudotsugae Hopk.). This species annually kills millions of board feet of Douglas-fir. It is the major cause of the so-called "bug patches" seen on hillsides. Timber killed by the beetle has generally lost all of its high value wood within the first three years and approximately fifty percent of its total volume by the eighth year after death.

Insects are not a major problem in the area but constitute a persistent one.

Fishery

The North Umpqua is nationally famous for its excellent summer and winter steelhead fishing. Trout fishery is maintained on a put-and-take basis by the Oregon State Game Commission by planting legal releases.

Winter steelhead, coho, salmon and coastal cutthroat use tributaries within the planning area. Spring chinook, steelhead, and coastal cutthroat move through the planning area to reach up stream spawning areas. The North Umpqua above Rock Creek deadline is closed to salmon angling. The remaining fishery is available to fly fishing only.

Timber

Timber harvest undoubtedly started when the first settlers began cutting corral poles, fence posts, cabin logs and roof shakes. Two short pieces of "loging (sic) road" appear on the 1882 Surveyor General's plat, crossing from Section 14 to Section 11, across the river from Idleyld Park. In 1897, the Puget Sound Lumberman cast an appreciative eye on "one of the finest belts of sugar pine now in existence" that stretched from Rock Creek towards Steamboat.

Federal lands in the area are composed of revested Oregon and California railroad grant lands and small tracts of unappropriated public domain lands. Although the O&C lands have a long and complicated history, their origin can be briefly summed up. Originally granted in 1866 to the Oregon and California Railroad Company to build a line from Portland to California, they comprised every other section for a specified distance away from the line. To assure that the specified land would be available, a further, wider strip was included for selection of "in lieu" lands to replace lands previously appropriated within the primary strip. Title wasn't granted until the lands were surveyed and surveys proceeded slowly. Half a million acres remained unsurveyed at the time of revestment. Under the terms of the grant, the railroad was to sell the land to any settler in parcels not to exceed 160 acres in size nor $2.50 an acre in price. The government charged violations of these stipulations among others and commenced, in 1908, by legislative and court action to repossess the lands. Federal legislation revested jurisdiction of the lands to the United States in 1916. In 1937 management policy for the O&C lands was spelled out by legislation which ordered that these lands be administered under the policy of sustained yield and multiple-use.

Management had largely been custodial in nature until the 1950's when dwindling old-growth supplies elsewhere focused attention on relatively more remote southwestern Oregon timber stands. Cutting on private lands in Rock Creek proceeded apace in the 1940's. Harvest of government timber picked up tempo in the following decade.

Harvesting of private timber in the planning area east of Rock Creek commenced in the 1950's. The Young's Bay Lumber Co. bridge was constructed at Smith's Ford enabling timber to be removed from much of the south side of the river. Other cutting took place utilizing many of the roads which branch from the North Umpqua Highway.

Private timberlands were nearly cut out when this bridge, by then owned by U. S. Plywood Corporation, was destroyed in the Christmas flood of 1964.

Recreation Attractions

This region is one of forest and water, hill and mountain, rock and fern, wildlife and open space. The interplay between all these natural associations results in a tremendous scenic resource and a wide ranging opportunity for both extensive and intensive types of quality recreation experiences.

Slashing a canyon through the Western Cascades, the North Umpqua River tumbles blue and green through quiet pools and whitened with foamy frenzy over bedrock channels. The river itself provides the focal point for most recreation.

Tourists and vacationers have discovered the North Umpqua Canyon and are entering it in escalating numbers, particularly since the new highway was completed. This road ties together two of Oregon's most sterling recreational attributes, Diamond Lake and the Oregon Coast.

Recreation use of the canyon in former times was generally by local people from Glide-Roseburg area, notable exception being people like Zane Grey who had a cabin near Steamboat in the 1930's. Grey allegedly thought so much of his wilderness enclave and the steelhead trout fishery that it produced, that he refused to write about it for fear of attracting people to the area.

The first recreational development began in Idleyld Park in 1920. It combined picnicking, overnight camping, cabins, a dance hall and store. Other campgrounds were maintained by service organizations. A dude ranch and the Steamboat Inn were constructed to form the nuclei of several other resorts on the river. The first public construction of camps was by the USFS when they constructed trail shelters and camps. Some of these rudimentary shelters still remain although the trails they served have been superseded by roads. Wolf Creek Campground, constructed in 1934, was the first campground built by the USFS. Others followed and by 1937 there were camps at Apple and Canton Creeks and at Island.

Douglas County Parks entered the canyon for the first time with Richard G. Baker Memorial Park in 1952. This is a wayside.

Susan Creek State Park was constructed in 1956 by the State Park Department and expanded under a Recreation and Public Purposes Lease with the BLM in 1962.

The BLM constructed Rock Creek Park in 1961 and Millpond in 1962. Additional development continued at these two sites with a ball field and irrigated lawn being the latest additions at Millpond during 1970.

Opening of the North Umpqua Highway initiated a rise in recreational demands and impacts. This continues through today and every prospect exists that tomorrow it will be more pressing.

Public agencies were urged to consider preservation of the beauty in the gorge of the North Umpqua River by a field conference of the Recreational Resources Committee of the Portland Chamber of Commerce in October 1943. The Douglas County Court, Oregon State Highway Commission and the Bureau of Land Management were urged, as a result of the meeting, to acquire all of the private logging companies' holdings bordering the North Umpqua River between Idleyld and the National Forest Boundary, an area of extremely heavy recreational use. Commitments made at that session resulted in the Douglas County Court obtaining several strips of land on the river in 1945. These lands were dedicated to recreational use. Further efforts in the early fifties by county land officials to preserve the scenery were expended in gaining quitclaim deeds on timber deeds issued much earlier for other county ownerships on or near the river.

In 1947, the North Umpqua Timber Company formally proposed an exchange of timber lands. This exchange, once consummated would, in the words of Daniel Goldy, Regional Administrator for the BLM "insure the complete retention of the recreational values of the first three miles of river frontage below the National Forest Boundary." That exchange would put 92% of the river front between Idleyld and the Forest Boundary into federal or county ownership. Goldy listed the following two public benefits in his memorandum to the Director recommending execution of the exchange proceedings:

"1. The acquisition of the offered land will insure public access to the North Umpqua River for recreational purposes and will insure the retention of enough timber adjacent to the North Umpqua River to adequately protect the scenic and other recreational values of the area.

2. It will consolidate Federal ownership in an area where there is need for management of timber to insure retention of scenic and recreational values."

On April 17, 1951, the exchange was completed and title was accepted by the U.S. May 23, 1951. A protective powersite withdrawal was placed on the land May 29, 1951. From that time until current time, BLM managers have stayed away from harvest activities, or road building within or near the immediate river environment until such time as comprehensive management plans could be forged. Such plans were attempted in the past but were never completed.

AREA RESOURCES AND RESOURCE TRENDS

RECREATION SITES

Many attractive developed recreation sites within or near the planning area serve facility-oriented needs. A complete list of developed recreation sites within or affecting the planning area is included in the Appendix, page

Whistler's Bend is the only overnight camping facility operated by Douglas County in the vicinity of the study area. Any development by the county to expand overnight camping will most likely be at this park. The county would like to keep Whistler's Bend as rustic as possible so not too much development is contemplated there.

Smith Springs is the only other county park in the area which possesses overnight camping potential. Its capacity will be six units and requires the installations of showers, improved rest room facilities and a caretaker.

The remainder of Douglas County parks in the area are all waysides. Most of these waysides were established to cope with existing heavy use for fishing or sightseeing access to the North Umpqua River. The intent is to provide basic sanitation and minimal facilities.

Susan Creek State Park occupies 147.99 acres of BLM land in T. 26 S., R. 2 W., Sections 23 and 24 under the terms of a Recreation and Public Purposes Act lease. This lease is for twenty years and will expire April 10, 1982. The park has been well developed for both overnight and day use. Considerable land suitable for recreational development adjoins the present site on both sides of the highway.

Forest Service developments have occupied all areas suitable for campground development within the National Forest in the North Umpqua canyon with the exception of one site which is currently programmed for construction. With the completion of Dry Creek Campground, some time in the next five years, Forest Service campground development on the main river will be completed. At this point, the intention is to convert Apple and Island to day-use areas since they are marginal sites for overnight use.

Some of the smaller Forest Service sites are developed mainly to provide basic sanitation at trail heads and popular fishing holes. Several trails are developed leading away from the river and the Mott Trail which parallels the river on its south bank leads from Steamboat to the vicinity of Bogus Creek before climbing up the ridge.

Existing Forest Service trails are popular with the public and their use is high.

The Bureau of Land Management has one wayside and one trail in the North Umpqua canyon. These are the Lone Rock picnic area and the Susan Creek Falls Trail. There are no BLM campgrounds near the river. BLM campgrounds in Rock Creek are Millpond and Rock Creek. Both areas have overnight and day-use facilities. Millpond has a large shelter and irrigated lawns which make this area very popular for organizational use. These two facilities are more highly developed than most recreational sites in the North Umpqua area.

On the north side of the highway along Susan Creek, there is a summer home tract. This was offered for lease in 1959 and some of the tracts went unclaimed at the initial offering. All but three were terminated for failure to construct improvements within five years or to maintain annual lease payments.

At Hill Creek, a scaling station used by the Forest Service has been dismantled. This is a small area but flat and thus possesses development potential for a day-use or information site. However, it will be some time in the future before development is warranted at this site for a day-use facility. Management of the area will be of such a nature as to preserve its recreation value.

On the south side of the river at Rock Creek, the Swiftwater Recreation site is programmed for F.Y. 1973 with nearly forty each of picnic and overnight units. Two large benches and one smaller one comprise the area. On the north bank adjacent to the bridge, a cooperative visitor information center is proposed. This will be ideally located near the western portal to the North Umpqua Canyon recreation complex.

Two other sites upstream have been identified as having recreation site potential based upon suitable size, location, and topography. Rocky Run lies partially on BLM and partially on county land in T. 26 S., R. 2 W., Sec. 17. South Shores is located in T. 26 S., R. 2 W., Secs. 22 & 23.

On the western portion of the study area, a recreation site potential has been identified in T. 26 S., R. 3 W., Sec. 11. This is a bench along the river approximately two hundred feet deep and four tenths of a mile long. It is covered with hemlock and hardwoods.

Management of all potential recreation sites will be to preserve their recreation values.

RECREATION ATTRACTIONS

Recreation attractions range from the river itself as a focal point, to very widely dispersed uses of the adjacent lands and "backcountry". The proximity of the highway, the excellent fishery, and the beauty of the river itself tend to concentrate people along the river banks, however.

The North Umpqua Highway is a preferred route by many to reach the east side of the Cascades because of the beauty of the drive. Areas along the river range from virgin stands to logged-over units. Old high-grade cutting on the river banks in some places has left a canopy of trees such that, to casual observation, the area looks untouched; however, powerlines interfere with the views in some areas.

Fishing for summer steelhead provides a great number of hours of quality fishing for many people. It is the steelhead resource which this river provides that gives the North Umpqua its nationally famous reputation. Trout fishing is rated as fair with the fishery being maintained almost entirely by the Oregon State Game Commission hatchery program.

Many feeder streams along the river have falls which are scenic attractions. Susan Creek has two falls with recreational potential. The lower one in Section 14 has a trail and picnic table development.

Also in the Susan Creek area are some rock piles built by Indian youths as a part of an initiation ceremony. They were examined in 1962 by the University of Oregon Museum of Natural History and it was recommended that they be protected. Some disturbance had already been noted although they contain no artifacts. A 6' fence has been erected around them for protective purposes.

Chimney Rock, a prominent feature in T. 25 S., R. 2 W., Sec. 32, lies over the ridge from the Umpqua Valley but the best approach would be from the south or North Umpqua side. The peak itself lies on Weyerhaeuser Company land, so any trail development would necessarily be a cooperative endeavor.

A natural rock bridge or arch also exists in the bowl below the eastern shoulder of Chimney Rock and the combination of features would make this a worthwhile trail development.

In the area of Bob Butte, extensive areas have been clear cut but are covered with excellent second growth. The next five years will see the change from a brushy texture to that of young firs. Most of this cutting is on private ground.

Cliffs abound on the south side of the river and present both attractions and hazards. Proper signing and trail location could take advantage of both the scenic and interpretive advantages offered by these features.

Regional Evaluation - Trends

Pacific Northwest Region

The growth potential of and increasing demand on the Northwest's recreational resources are well documented in many recent studies among these being ones published by: Batelle Memorial Institute; the Bonneville Power Administration USDI; Pacific Northwest River Basin Commission; and State of Oregon Highway Department.

Trends in Demand Factors

Time

Increasing leisure time creates greater demands for outdoor recreation even in static population levels. Shortening of the work week as well as the increasingly popular four-day, 40-hour work week continue to affect demands. Longer paid vacations and increased holidays combine to grant more leisure time. Lowering retirement ages and increases in life spans are putting more people on the recreation trail.

Income

Disposable income has risen markedly since the turn of the century and particularly in the post World War II period. Discretionary income (that money left after basic needs are satisfied) is equal to one-third all personal income and will likely rise percentage-wise with per capita income increases.

Population

Nationally, as well as regionally, population continues to rise but at a declining rate of increase. Trends are toward smaller families which means an increasing number of households. Northwest population growth was slightly under the national rate of increase in the decade 1950-1960, but still equaled an 18 percent increase. Regional population re-alignments indicate that the rates of growth will likely increase, particularly in southern Oregon.

Mobility

Increasing ownership of passenger cars and recreational vehicles combined with the suitable transportation network to serve them has greatly increased the mobility of people and consequently, the accessibility of recreational resources throughout the region. Smaller family size also tends to increase mobility. Easy availability of jet aircraft makes travel to distant recreational areas easy.

Urbanization

Urbanization with its concomitant crowding and withdrawal from nature is proceeding apace in the Portland and upper Willamette valley areas. Pressure from these urban areas will continue to affect southern Oregon and the Umpqua Valley.

Education

The Outdoor Recreation Resources Review Commission, in its 1962 report, indicates generally that with increasing educational levels, individuals participate more in outdoor recreation. The report also found that the higher the individual's educational achievement, the more likely they were to seek a more primitive recreational experience.

A corollary effect of increasing educational level is that living standards are raised along with technologic accomplishments. These two accomplishments result in more disposable income as well as increased leisure time, both of which effects are well known. Educational levels are still trending upward.

Recreation Market Area

The recreation market area is defined by the Columbia-North Pacific Region Comprehensive Framework Study (CNPRCFS) as the area from which 80 percent of the recreation users are expected to come. Currently and for the foreseeable future, the bulk of the tourists affecting the Northwest's recreation demands come from within the region or within a day's drive.

Residents of this region have frequently been attracted by the outdoor recreational atrributes present by virtue of the region's mountains, sea shores, lakes, rivers, and forests. Low income urban slums or ghettos are not the source of very much extraurban recreation pressure and they are not present in Oregon urban areas to the degree that they exist in other regions, so the preceding two factors indicate a much higher per capita demand for outdoor recreation than exists for the nation as a whole.

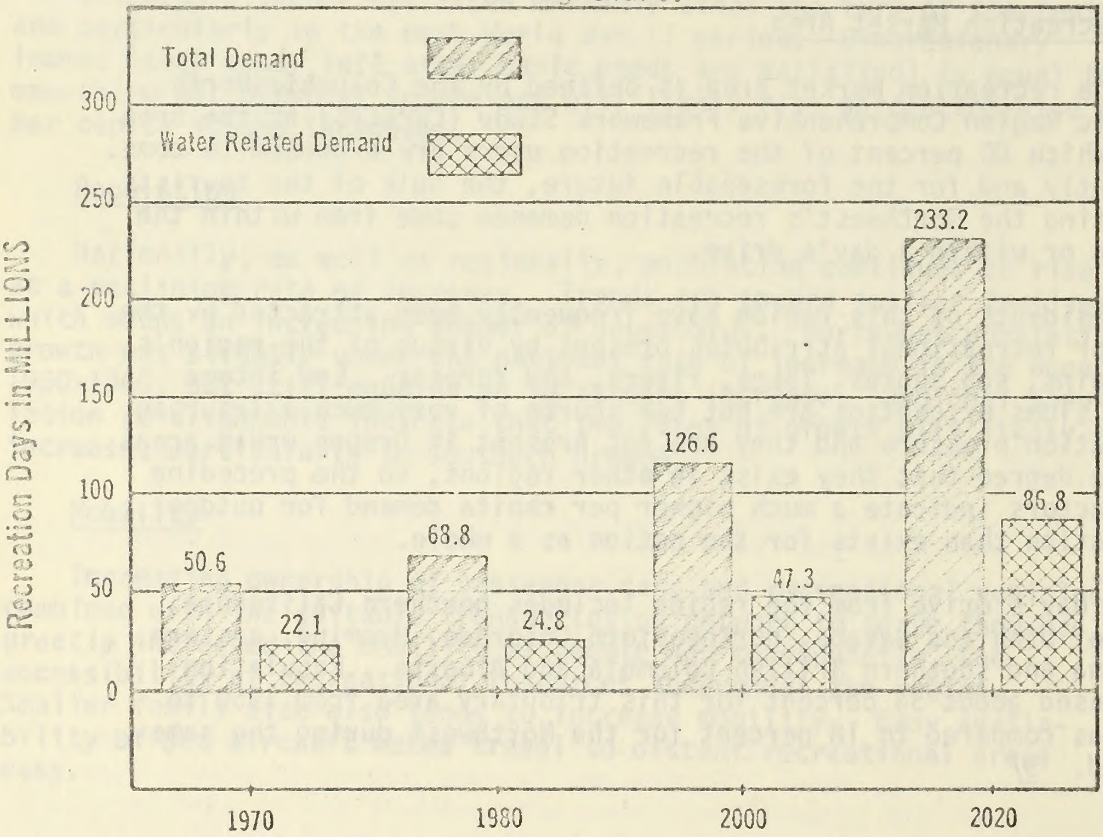
A day's drive from the region includes northern California, much of Utah and Nevada, northwestern Colorado, Wyoming, eastern Montana and southern British Columbia and Alberta. Population increased about 34 percent for this tributary area from 1950 to 1960 as compared to 18 percent for the Northwest during the same period. 9/

Regional Outdoor Recreation Needs

The Northwest Region as a whole, was found to have a recreation facility shortage in 1970 by the CNPRCFS report. The Coastal Subregion, designated by the report, encompasses the Washington-Oregon coast to the Coast Range and southern Oregon Cascades on the east, lies two-thirds within Oregon and includes the Umpqua Basin. Water related recreational demand in terms of recreation days for the subregion in 1970 was calculated at 22,100,000. Capacity at the current development level was 17,200,000 and was meeting 78 percent of the demand. Projections based at the current development level, for 1980, place demand at 24,800,000 recreation days with only 69 percent being satisfied. Regionally, the 1970 demand was 83 percent satisfied with 1980 demand projected to be about 64 percent satisfied according to the report.

The Columbia-North Pacific report identifies this subregion as being the number one priority for the undertaking of more detailed recreation studies, based upon the complexity of its problems and urgency of action. Although the problem is expected to be more critical in the northern portion of the subregion first, it is expected to extend eventually to all of its area.

Recreation use for the subregion in 1965, was 32,792,000 recreation days. This does not include latent demand. Projected demands are shown in the following chart.



Expected Growth of Recreation Demand COASTAL SUBREGION

Source - Columbia-North Pacific Comprehensive Framework Study - App. XIII

The water related activities include both those requiring actual water surface such as swimming, fishing, boating, and water skiing and those activities that occur on land but are enhanced when located near the water.

Satisfaction of Needs

Using BOR land class definitions, the BLM in this area, will be providing lands to meet Class II - General Outdoor Recreation Areas with an annual capacity of 250 recreation days per acre; Class III - Natural Environment Areas with an annual capacity of one recreation day per acre; and possibly Class IV - Outstanding Natural Area with an annual capacity ranging from 20 to 50 recreation days per acre.

Class II use includes most nonurban developed overnight camps and day use areas. A regional shortage will continue to be a growing problem at the current development level. The regional shortage is accurately reflected in the North Umpqua Canyon area with particular respect to overnight accommodations.

The Roseburg District can and will strive to meet local and regional recreational needs through environmentally sound judicious development of amenable sites.

The Columbia-North Pacific study identified potential recreation development zones. Among those which appear on the Roseburg District is the area at the confluence of Rock Creek and the North Umpqua River extending upstream on both watercourses for several miles. It is within this zone that several potential recreation sites have been identified and one (Swiftwater) is currently planned for development.

The direction of management needs as seen in the Columbia-North Pacific study are delineated in the following excerpt.

> "In the Oregon portion of the subregion, if the existing high-quality environment is to be maintained, major efforts will be necessary in the form of: (1) maintaining and enlarging upon the existing scenic roads and highways (including adjacent scenic corridors of land); (2) dedicating the major portions of all 25 free-flowing rivers and segments, including adjacent scenic corridors; (3) building several small reservoirs in upper tributaries for recreation, fishing, and improving quantity and quality of downstream summer flows; (4) regional land-use zoning to insure that commercial developments and private recreation facilities are harmonious with surroundings and of the proper density; (5) improving the wildlife habitat on the Federal lands, the privately owned timber lands, and ranch lands; (6) constructing and maintaining public and private high quality recreation facilities (including trails) to satisfy needs; (7) preserving existing primitive, historical, and archeological values; and (8) limiting the recreation use before it begins to cause deterioration in either the environment or the recreation experience. The latter situation is projected to begin about the year 2000."

Planning Area Facilities and Use

Agencies with recreation developments within or near the planning area are Douglas County Park Department, Oregon State Parks, Umpqua National Forest and the BLM.

Douglas County Parks

The following table indicates the level of usage occurring during sampling on high-use days. The "percent of usage" indicates what percent of the total installed facilities were occupied and used during the sample period; e.g., a total of ten picnic tables available, five being used on a Sunday afternoon equals fifty percent usage. These figures are averages and use exceeded 100% when, for example, two different family units shared the same table or when a camper or camp trailer was allowed to use an undeveloped spot in the area under overflow conditions.

Park Name	Picnic Units 1972	Picnic Units 1970	Tent Camping Units	Percent of Usage 1972	Percent of Usage 1970
Whistler's Bend	32	25	18	125%	100% during summer
Richard G. Baker Memorial Park	13	25	None	100%	100% during summer
V.T. Jackson Wayside	2	3	None	100%	80% during summer
Cable Crossing Wayside	--	4	None	--	100% during summer
Lone Rock Wayside	2	2	None	100%	80% during summer
The Narrows	2	6	None	150%	100% during fishing season
Cavitt Creek	5	5	None	75%	80% during summer
Smith Springs	7	12	None	100%	100% during summer

North Umpqua Area Use Data - Douglas County Parks - 1970-72

State Park usage at Susan Creek State Park has grown steadily. The Camp is full to capacity nearly every night during the summer use season and turnaways are high. Campers have been permitted to use the day use parking lot for overnight parking and high nightly turn-aways have still resulted. Day use is less intensive than overnight camping but none-the-less, a significant number of visitors is accommodated and a rising trend continues as shown in the following table:

Susan Creek Park

	1971-72	1970-71	1969-70	1968-69	1967-68	1966-67	1965-66
Day Visitors	44,000	45,676	39,924	42,676	27,600	23,128	26,208
Overnight Camping (Camper Nights)	11,900	11,700	9,592	8,244	8,840	9,092	7,671

Turn-aways recorded during July and August 1970 at the park were, respectively, 17+ and nearly 19 per day. The Park Manager reports turn-aways as high as 50 units per day at times.

Forest Service recreation areas show a similar pattern of use with the exception of picnic facilities. Forest Service day-use (picnic) areas are in most cases under utilized. This is attributable to the fact that they are somewhat more remote, are not generally located at destination points and compete with County Waysides which are closer to urban centers thus more accessible. Similarly, BLM recreation areas at Rock Creek and Millpond are more accessible with the latter also having a community recreation development as an attraction.

Campground use has climbed from 20,500 visitor-days in 1965 to 36,800 in 1971 for Forest Service sites. This represents a total increase of 80 percent for the period. In like manner, camping activity has increased 37 percent from CY 1967 to 1971. The Forest Service feels that their present facilities are meeting their demand except for several peak weekends. While camping has shown a steady increase, driving for pleasure has shown the sharpest rise in recreational use of the National Forest here. (Table next page)

BLM recreation sites have not been sampled in the more distant past by statistically viable methods. However, in the past 3 years reasonably good data has been collected. Maintenance and fee collection are engaged in daily during the summer season both at Millpond and Rock Creek sites. Personnel engaged in these activities report capacity use during most of the summer with excessive turn-aways on peak weekends. Organizations and groups from both the local and the western region make use of the organizational facilities at Millpond. These groups utilize the area both within and out of the high-use season. Many out-of-staters make these two camps their primary destinations, returning year after year. Heavy use of these sites is significant as they are several miles away from the North Umpqua Highway and not well marked at the Rock Creek Access Road Junction with that highway.

Driving for pleasure, rock hounding and general use of BLM and intermingled lands appear to be the most extensive recreational uses of BLM lands in the area.

ANNUAL RECREATION USAGE FOR U.S. FOREST SERVICE RECREATION SITES - NORTH UMPQUA COMPOSITE
Visitor Days Use x 1000

Type of Use	CY 1971	1970	1969	1968	1967
Camping, General	13.1	10.8	9.1	8.7	7.8
Camping, Auto	6.5	5.6	3.9	3.7	3.6
Camping, Trailer	11.8	10.4	11.7	10.8	10.2
Camping, Tent	4.8	4.4	3.9	4.1	3.5
Private Resort	15.8	15.5	14.6	13.3	2.7
Picnicking	2.9	2.7	4.3	2.2	1.7
Total Use	104.0	97.3	69.0*	45.4	29.8
Kind of Site/Activity					
Recreation Roads		34.4	8.2	--	--
Family Picnic Grounds		1.9	2.6	6.7	7.5
Family Campgrounds		31.6	29.7	24.7	19.5

*This figure represents both an increase in use and an increase in sampling base.

ANNUAL RECREATION USAGE BLM SITES AT MILLPOND AND ROCK CREEK - Visitors

	CY 1972	1971	1970
Overnite	5799*	6258	4253
Day Use	5118*	4504	2178

*Rock Creek closed until 7/29 for repair of water damage.

Use of recreation facilities provided by the state and county has exceeded capacity during peak periods.

Projected Needs

Douglas County Parks considered to be pertinent to the planning area have been used to or beyond capacity for the past several years thus indicating the existence of either unfulfilled latent demand or an excess demand which is being satisfied by other agency sites. Most likely, a combination is the true case.

Susan Creek State Park has experienced an annual growth rate of 9.2% in day-use and 7.5% in overnite use.

Using the Forest Service concept involving the calculation of the level of usage occurring on a site in terms of the percent of its theoretical capacity, Susan Creek Park, in 1971, stands at 38% for overnight use. Forest Service research indicates that at a well managed site, usage stands between 20 and 40 percent of theoretical capacity. Extremes beyond these termini indicate under-utilization or over-use. Susan Creek was calculated on the basis of a 200 day season which includes the slower months which bracket the ordinary high use summer season. Use of the summer high period alone would undoubtedly produce a much higher figure, thus it appears that this park, too, has a considerable amount of unsatisfied demand associated with it.

Day-use at Susan Creek is considerably below its capacity although it is increasing at a healthy rate.

Forest Service overnight camping sites within the North Umpqua Composite, have been receiving a 10.2% annual rate of increase. At this level of increase, some sites which are currently under-utilized will soon be inadequate.

Currently, developed sites within or near the planning area are providing 33,400 visitor-days* of day-use and 86,000 visitor-days of overnight use. The total for both dispersed and developed site use is 210,500 for 1972. These figures include the Forest Service North Umpqua Composite area as well as BLM, Douglas County and private lands.

*based on a 12 hour visitor-day

Projections indicate an overnight demand of 223,000 visitor-days by 1982. Total use is expected to reach 1,012,000 visitor-days by that year based upon a 4 year trend of 17% per year increase.

Figures were collected from several agencies using equally diverse methods of data collection and tabulation. Using the best information available, these data were converted to a common basis, the 12 hour visitor-day and projections were based on this.

Many factors can affect the ultimate complexion of processes based on extrapolation from current data, including the effect of the predictions themselves, so specific reliance on such projections should be avoided. However, extrapolations can and do indicate trends fairly accurately in the near future and generally so in the more distant periods. It can be seen that a rising demand is occurring within the region for recreation facilities. If such demands are not met, channeled into proper facilities and controlled, serious environmental degradation will occur particularly at the most popular areas. Use figures and observations demonstrate that the North Umpqua River is a popular and growing region of outdoor recreational pursuits. The major impacts are and will continue to be from metropolitan areas in Oregon and from northern California.

SUMMARY

Ability to meet current demands for overnight camping is inadequate in the western portion of the canyon. Whistler's Bend is providing 13,700 visitor-days and operating at capacity. Only a nominal increase can occur here without expansion. Susan Creek, similarly is at capacity - providing 23,800 visitor-days. BLM campgrounds in Rock Creek provided 11,600 visitor-days last year with one campground closed for part of the season. A small increase can occur at these sites but most likely will not exceed 2,000 visitor-days.

Forest Service sites east of the planning area can accommodate an increase from their current level of 36,800 visitor-days to about 51,000 visitor-days. Some of the smaller sites are heavily used and cannot take more use while the additional use can be absorbed by the two larger sites. The demand is, then, centered to the western portion of the canyon where no additional capacity exists, and the excess capacity lies to the east. An additional complication is that over-use is occurring during the high volume summer season and most of the additional capacity is available before and after the summer months.

In 1972 active demand for overnight camping was satisfied at 86,000 visitor-days drawing against an ultimate capacity of 102,500. Use at this upper level would entail damaging levels of occupancy at all sites during the entire season. Projections indicate that the 1974 demand for this area will equal 104,000 visitor-days.

The Bob Butte Road will aid considerably in redistributing and satisfying recreation demands in the western portion of the canyon. It will provide access to the Swiftwater recreation site which is expected to provide for 83,000 visitor-days use shortly after its completion. Additionally, it will provide either direct or indirect access to two other recreation sites which, if developed, will accommodate a large number of recreationists.

It has been estimated that at full development on peak weekends by the year 2000, the average daily traffic (ADT) will include 556 recreational vehicles. If an average of three persons per vehicle is used, this will equal 3300 recreationists.

Economically, recreational income is not a significant factor in the overall economic picture of Douglas County although it assumes a significant role in local areas. Two of the areas are the coastal region and eastern Douglas County from Glide to Diamond Lake. The recreational quality available locally does contribute greatly to the area's general livability and is consequently an important social value to Douglas County residents.

FISHERY AND WILDLIFE

Fisheries

The North Umpqua supports a variety of fishes, but its runs of salmon and steelhead are its primary attraction. Almost all the Umpqua spring chinook and summer steelhead are produced in the North Umpqua. This stream has long been considered by the Oregon State Game Commission to be outstanding for steelhead and salmon angling.

For the most part, spawning and rearing of these fishes takes place above the planning area.

The numbers of adult steelhead and salmon returning are estimated from counts at Winchester Dam located some 29 river miles below the planning area. (Appendix pp 121-122)

Some of the fish species that can be found within the planning area are:

- Summer steelhead
- Spring chinook
- Winter steelhead
- Fall chinook
- Coho salmon
- Sea-run cutthroat
- Resident cutthroat
- Rainbow trout
- Brown trout
- Dace
- Cottids
- Redside shiners
- Chub (Oregon chub may be present)
- Pacific lamprey
- Suckers
- Squawfish
- Three-spined stickleback

Wildlife

Black-tailed Deer are distributed throughout the planning area. Population figures relative to this area are maintained by the Game Commission for the Dixon Management Unit which incorporates a considerably larger area than the subject zone. Populations within this general area have been on a declining trend since 1968. In the period 1964-1968, the average number of deer per mile on the census route was 4.3, declining to 2.9 in 1970. A major portion of the decline is attributable to heavy winter kill in 1968-69.

Roosevelt Elk numbers in the planning area are low and distribution is restricted. The largest of the big game animals within the region, elk are highly sought after by both the hunter and the wildlife observer. Suitable areas to expand elk habitat within the planning area are limited. Development of extensive public access will probably reduce the elk use in the area.

Black Bear are widely distributed in the planning area. Populations are thought to be low, but data on bear is not available. At the present time, Game Commission management objectives in the area are to maintain present populations.

Pheasants and Valley Quail are found in lowland areas adjoining agricultural land. For the most part, these populations are supported on private land. Available habitat within the management zone and the opportunity to increase suitable habitat is limited.

Ruffed Grouse can be found along most of the stream bottoms throughout the planning area. Populations are not high. Typical of grouse populations, their numbers fluctuate widely. Maintaining brushy areas on flats along streams is the only feasible method of habitat improvement.

Blue Grouse are found in the planning area in association with mature coniferous forest stands. They favor ridge top areas with natural openings interspersed in the stand. Utilization during summer and fall is made of clear cut areas adjacent to timber stands but penetration of cutover areas is low.

Bandtail Pigeons are found in small numbers within the planning area. Pigeons use some of the clear cut areas for feeding and nest in associated conifers. The lack of data on the bandtail pigeons or its habitat is one of the key management problems at this time. The birds are vulnerable to over shooting, especially at mineral springs where birds can be found concentrated. At the present time, no mineral springs have been located in the area.

Waterfowl use of the North Umpqua Canyon planning area is confined to the areas along the river.

Fisheries and Wildlife Outlook

Use of the Northwest's fish and wildlife resources is high and continuing to rise. By the year 2020, the coastal subregion forecast indicates a demand for an additional 1,680,000 angler days for resident fish and 886,000 angler days for marine fish. 6/ Commercial harvest demands are forecasted to total an additional 53,000,000 pounds of marine fish by 2020. 6/. Non-consumptive uses of these resources are growing rapidly as people, more and more, become interested in the observation and photographing of birds, animals and, to a lesser extent, fish.

Six of the nine species of salmonids inhabiting the planning area are anadromous. Of these, the summer and winter steelhead and the spring chinook provide the greatest contribution to the sports catch. While attracting large numbers of anglers each year, the famed summer steelhead has given the river nationwide esteem. Cutthroat trout are usually caught on the North Umpqua as incidentals to the summer steelhead catch. Fall chinook and coho comprise a minor run within the planning area.

The Umpqua basin produces about 128,000 salmon annually which are caught by commercial fishermen from Alaska to San Francisco. The average annual value of these fish to fishermen is estimated at $750,000. 7/

Troll fishermen took 611,940 pounds of salmon in 1970 while operating from Winchester Bay. This catch had a value to the fishermen of about $330,000. 7/

Since 1957, angler trips for steelhead have increased from 2,157 to 51,665 angler trips in 1970. Spring chinook angler trips have risen from 2,033 in 1957 to 12,986 in 1969, falling to 7,506 in 1970. (Appendix pages 79-80) Trout angler trips ranged from 10,169 in 1959 to 18,009 in 1962.

Steelhead harvest has risen from 410 fish in 1957 to 8,905 fish in 1970, during the same period spring chinook harvest grew from 183 fish to 5,714 fish. Poorer returns dropped the harvest to 2,318 in 1970, down from the 1969 high but still exceeding all other previous years. (Appendix pp 121-122) Trout harvest between 1958 and 1964 has ranged from 30,200 fish to 44,699 fish.

The Oregon State Game Commission predicts a 50% increase in the sale of angling licenses by 1980, with a potential increase of 350% by 2000. 7/

The majority of the fish runs on the river are produced and maintained by the state hatchery program. Hatchery trout make up 90% of the North Umpqua trout harvest. Heavier use could be made of this resource without depleting it, as currently, only the North bank is available for fishing by an consequential number of people. Increased planting by the hatchery could provide more fish if the take began to exceed present planting levels.

Increased harvest of summer steelhead may occur if this plan is fully implemented; however, two factors will bear upon the result. Factor number one is that casual tourists very likely will possess little or none of the adroitness necessary to hook and land a "steelie" on a fly. The second factor involved is that the summer run is largely the result of a successful hatchery propagation program and an increase in the planting of smolts will increase the return. Such an increase can be made, theoretically, up to the limit of the ocean's ability to nurture young fish to maturity.

Spring chinook will be largely unaffected as taking them is prohibited above Rock Creek. Some increase in the harvest of spring chinook could be accomplished without harm to the run.

The value of the North Umpqua fishery seems likely to continue to increase for both commercial (ocean caught) and sport fishing. Increasing levels of management in response to increased pressure on the resource will readily insure the continued availability of a high-quality fishery resource on the North Umpqua.

The coastal subregion forecasts indicate that, by the year 2020, there will be a demand for an additional 1,167,000 hunter days.

Hunting in the North Umpqua Canyon Management area is primarily for black-tail deer and upland game birds. The planning area comprises a small portion of the Game Commission's Dixon Management Unit and specific figures cannot be broken out. However, general information obtained from unit figures is of some value. Hunting impact in the Dixon unit has shown a steady increase. Intensive management of the habitat on both sides of the North Umpqua can increase the number of black-tail deer available. Reestablishment of access to portions of the south bank will increase the harvest opportunities available there.

SUMMARY OF DIXON MANAGEMENT UNIT DEER SEASON

Year	Hunters	Hunter Days	General Season Bucks	Does	Total	% Success	Extended Season	Control Season	Total Deer	Deer per Sq. Mile
1965	4,485	29,436	1,546	690	2,236	50	124	41	2,401	1.1
1966	4,836	27,703	1,807	423	2,230	46	-	300	2,530	1.2
1967	5,180	29,400	2,590	650	3,240	63	-	240	3,480	1.48
1968	5,250	29,000	2,440	640	3,080	59	-	620	3,700	1.57
1969	5,460	33,190	1,920	-	1,920	35	340	80	2,340	1.05

Source: Oregon State Game Commission 1970 Game Division Annual Report

ROOSEVELT ELK HARVEST DIXON MANAGEMENT UNIT

Year	Hunters	Hunter Days	Harvest Bulls	Anterless	Total	% Success	Elk per Sq. Mile
1965	399	-	42	0	42	11	-
1966	343	1,955	47	0	47	14	0.2
1967	400	1,850	31	1	32	8	0.01
1968	410	1,750	63	0	63	15	0.03
1969	370	1,730	35	0	35	9	0.01

Source: Oregon State Game Commission 1970 Game Div. Annual Report

Angler effort for salmon and steelhead in the North Umpqua has increased with the increased runs. Angler effort for trout in the North Umpqua has remained fairly stable. Hunting effort has maintained a slow-but-steady growth from 1965. Future outlook is for increasing demand on fish and wildlife populations both for consumptive and non-consumptive uses.

WATERSHED AND HYDROLOGY

Current Status

Some 93% of the runoff in this region originates on forested lands. This tremendous contribution of water to streams points up the importance of watershed protection in the upland areas.

The planning area watershed is quite variable in character. Soils vary from high clay materials to coarse gravelly deposits. Vegetation covers most of the area with the exception of roads, rocky outcrops and the river.

Aquifer yields are unpredictable with massive non-porous andesites producing little or nothing, while perched water tables on alluvial terraces provide good well production.

Groundwater recharge occurs rapidly when heavy fall rains begin and by mid-winter any two-or-three-day period of steady precipitation results in heavy discharge from drainage portions of the aquifers into depressions and watercourses and rejection of potential recharge.

The larger streams within the planning area are listed in the Appendix on page 120. Other smaller streams occur but are not shown on quadrangle maps and thus are not tabulated there. They run only in the winter and some only during and shortly after precipitation occurrences. The chief water quality concern with these streams would be the small volume of sediment and debris that they could flush into the main streams.

There are no gaging stations on the smaller streams so no data is available on a regular basis as to their volume.

Rock Creek, a large tributary with a discharge averaging 385 cfs per year, enters the planning area in T. 26 S., R. 3 W., Sec. 1, SE¼SW¼. 2/ It has been excluded from consideration in this plan because the extensive size and different character of its watershed merits its inclusion as the subject of a separate intensive management plan. Its relationship to the North Umpqua Canyon has been coordinated in the overall Management Framework Plan developed in 1972 for the North Umpqua Planning Unit on file at the District Office.

U.S.G.S. gaging stations are located near Copeland Creek (about 22 miles east of the planning unit boundary) and at Brown's Bridge (about 27 miles west of Lone Rock Bridge).

Average discharge at the Copeland Creek gage is 1,515 cfs (1,098,000 acre feet per year) with extremes being 40,700 cfs on December 22, 1964, and a minimum daily of 565 cfs September 13, 1959. 2/ This is for a watershed area of 475 sq. miles. Some flow regulation is afforded by Diamond and Lemolo Lakes. Power plants upstream cause considerable fluctuation; however, recent cooperation by PP&L with the Oregon State Game Commission has resulted in water releases, designed to minimize level changes.

The Winchester gage, located about 3 miles west of Winchester near Brown's Bridge, measures a watershed of 1,344 sq. miles and provides an average discharge of 3,632 cfs (2,631,000 acre-feet per year) with extremes of 119,000 cfs December 22, 1964, and a minimum daily of 578 cfs September 14, 1959. Design calculations for the Swiftwater Bridge indicate that a 50-year flood at that site would involve a flow of 70,000 cfs at a center channel surface elevation of 776.7 feet.

Collection of sediment samples was initiated in 1956 and continued through 1967 on several streams in the Umpqua Basin. 3/ No trend in sediment yield could be determined from the data given. However, sediment yield from the region is quite low being in the range of 0.1 - 0.2 of an acre-foot per square mile per year. 4/

Young topography combined with high rainfall creates instability in a watershed with mass movement of the soil mantle being common and natural. Much of the geologic erosion occurring in the North Umpqua Basin is effected by mass slope failures. Numerous old slides are evident in the region. Some are stabilized and support timber of considerable size and age. Others are still mobile.

Water quality during most of the year with the exception of occasional high water periods, may be characterized as high.

Outlook

Although the watershed area in the planning zone provides only a small contribution to the total discharge volume of the North Umpqua, activities within the watershed that result in soil movement can have a pronounced influence on the quality of the water leaving the planning area.

The present trend of road construction and timber management and harvest will continue with equilibrium being reached within a few years. At that time, most main road construction will have been completed with the exception of short spurs necessary to reach individual management units. From that time on, watershed conditions should improve due to stabilization of cutbanks and fills, revegetation of disturbed soil, and ease of maintenance access.

Vegetation alteration due to timber harvest is currently slightly less than at equilibrium due to access problems on a portion of the area, but should reach equilibrium level without significant change in watershed quality.

On site withdrawal of water is limited, primarily, to small land owners in the area between Honey Creek at river mile 39 and river mile 41.

Below the planning area the North Umpqua provides water for irrigation, industrial, and municipal uses.

Regionally, industrial use is the largest source of withdrawal with irrigation coming second in diversion but first in consumptive use. Municipal supplies were third. 4/

On the North Umpqua, municipal withdrawal for both domestic and industrial uses will likely register a slow, steady increase. Agricultural withdrawal will not likely increase significantly. This trend should hold true for the main Umpqua as well.

Activities on the South Umpqua may affect water quality and quantity on the main Umpqua and thus have a corollary effect on the North Umpqua which supplies much of the flow to the lower river, particularly in the summer. Consumption of North Umpqua water may rise to supplant dwindling water supplies on the South Umpqua.

Non-consumptive recreational use of the water is high, particularly by fishermen and should continue to rise.

TIMBER

Timber is one of the major natural resources within the canyon. As noted previously, it has attracted attention from the earliest days of white settlements. Difficulty of access in the early period combined with concern for the canyon's aesthetics resulted in reaching only a moderate level of timber harvest. Increasing emphasis on the North Umpqua's other major resource values of spectacular scenery, recreation and fishery will increasingly effect a lowered flow of forest products in the future.

The annual cut for the planning area with no restrictions is estimated at 8,000,000 bd.ft. The restrictions due to recreation landscape management and stream buffer strips will reduce the annual allowable cut to 7,104,000 board feet.

Current Status

The following is a breakdown of BLM timber in the planning area.

Total Acres	Acres Cut	Acres Remaining	Volume Remaining
16,000	3,400	12,600	554,400 MBF

Timber Age/Acres	
0-20	3,400
21-80	3,000
81-200	6,600
201+	3,000

Age 0 - 20

Approximately 3,400 cut-over acres have been surveyed within the planning area and about 94 percent of them are considered stocked. Approximately 200 acres are in units which have failed and have been retreated but not resurveyed and classified as stocked, or are awaiting sufficient stock for retreatment. The ban on direct aerial seeding has resulted in somewhat of a backlog of units to be treated. Approximately 750 acres will be ready to precommercially thin in 2 to 5 years. The foregoing data are current through 1970.

Age 21 - 80

The approximate 3,000 acres in this age group are scattered throughout the area. In most instances it exists in individual tracts big enough to thin. Growth in this age group (430 bd.ft./acre/year) is approximately two times greater than the 80-year-old and over age group.

Age 81 - 200 and 201+

Acreage in rotation-age and over timber is approximately 9,600 acres. This timber is scattered throughout the area and varies from vigorous to decadent. Average growth is around 200 board feet per acre per year.

Regional Evaluation and Trends

The first BLM timber sold in the planning area was to the North Umpqua Timber Co. in 1944. Douglas-fir sold for $1 per thousand board feet. Since that initial sale, another 135 million board feet has been sold.

Forest products from the Pacific Northwest comprise an important segment of the Nation's timber economy. In southwestern Oregon, and Douglas County in particular, forest products are the body and soul of the economy.

Market demands for wood products are forecasted to continue rising. Conversion of old growth to managed second-growth stands is rapidly reducing the standing inventory but is concomitantly increasing the productive rate on forest lands.

Brakes on manufacturing production are likely to arise from lack of economically-available raw materials rather than from market processes. Emphasis will change regionally from lumber and plywood to paper and allied products as consumers of wood fiber. The shift in emphasis will likely be considerably slower in the Douglas County area due to the predominance of large old-growth timber in the inventory.

Federal ownership predominates in commercial forest lands with private second, followed by state lands.

Severance of timber began earlier and progressed more rapidly on private lands than on Federal lands. Loss of land base to urbanization and other non-timber producing uses has resulted in the erosion of private commercial timberlands and will likely continue in the future. Private lands will experience a gap between the end of old-growth supplies and second-growth coming to rotation age. This, combined with erosion of the land base, will increase the demands on Federal timber supplies. Locally, the preceding effects will not be as pronounced as elsewhere in the region, but they do, and will continue to exist as detectable and significant factors.

Management levels are increasing on both private and Federal lands through increased thinning, fertilization, genetic improvement, and other intensive management techniques. It is likely that this trend will continue and, in fact, accelerate.

Total wood production in the Northwest has peaked out and is trending downward, particularly with respect to private lands. This situation is likely to continue until the cut balances net growth. Log production for the coastal subregion has declined from 7.0 billion board feet in 1952 to 6.4 billion board feet in 1964. (International 1/4 inch rule.)

Lumber production in the region declined 14 percent between 1950 and 1966. Paralleling this decline, the number of sawmills fell 38 percent in western Oregon between 1956 and 1964.

The Willamette Valley and the coastal subregion account for two-thirds of the region's plywood capacity. Plywood production will likely remain high in the Roseburg area because of the big inventory of large old-growth trees and large installed capacity present.

Pulping operations are non-existent in inland Douglas County. Wood residue is being used to manufacture particleboard and chips for export. No major increase in pulp chip utilization locally is foreseen and the export chip market should remain fairly stable with a long-term decrease predicted.

In the overview, United States demand for lumber is predicted to increase 22 percent between 1962 and 1985, plywood demand to double by 1985, and Pacific Rim country markets to continue to exert strong market demands. This will result in all future production being absorbed by various markets.

Future timber harvest in western Oregon will not be adequate to maintain the present level of wood consumption.

Since 1950, Douglas County has averaged 15 to 20 percent of the total production of western Oregon. Log production from Douglas County has exceeded one billion board feet from 1948 through present. Total log production doubled between 1925 and 1950 and has remained constant since. 5/

Raw material supplies from private lands have declined from 1.5 billion board feet in 1955 to about 800 million board feet in 1968. Timber supplies from public land have risen from 300 million board feet in 1955 to about 800 million board feet in 1969.

In the face of declining private timber availability and a sustained or decreased level of federal timber supplies, economic activity and employment will decline in the Douglas County area in the next few decades without considerable diversification.

Formulating ten goals in response to recognized problems, the Douglas County Overall Economic Development Plan Committee of April 1970, recommended as one goal that timber production be increased on all lands to lessen the impact of a declining overall annual allowable cut.

RANGE

Grazing opportunities are practically non-existent, therefore, there is no foreseeable demand for this resource use.

MINERALS

Mineralization by valuable elements is almost totally lacking. There are no locatable mineral deposits known within the planning area nor are any mining claims filed. Semi-precious stones such as agates and geodes occur in bar gravels on the river. Petrified wood, quartz, geodes and semi-precious stones have been reported in T. 25 S., R. 3 W., Sec. 29. Coal has been reported occurring in thin seams in road cuts and along the creek in T. 26 S., R. 2 W., Sec. 26, SE¼NW¼. It has also been identified in T. 26 S., R. 3 W., Secs. 8, 9, 10, along the North Umpqua River.

The only presently-known valuable mineral estate on the area is that located in quarries containing suitable road construction rock. Several pit run and crushed rock quarries have been developed on the area. These are shown in Illustration No. 1.

Portions of the area have been examined and published under Public Law 167, the Multiple Surface Use Act. However, the lack of locatable minerals obviates the need for much use of P.L. 167 in this area.

The lack of economic minerals in the North Umpqua Planning area restricts use demands. With the exception of road construction rock, future outlook is for no increase in demand or development.

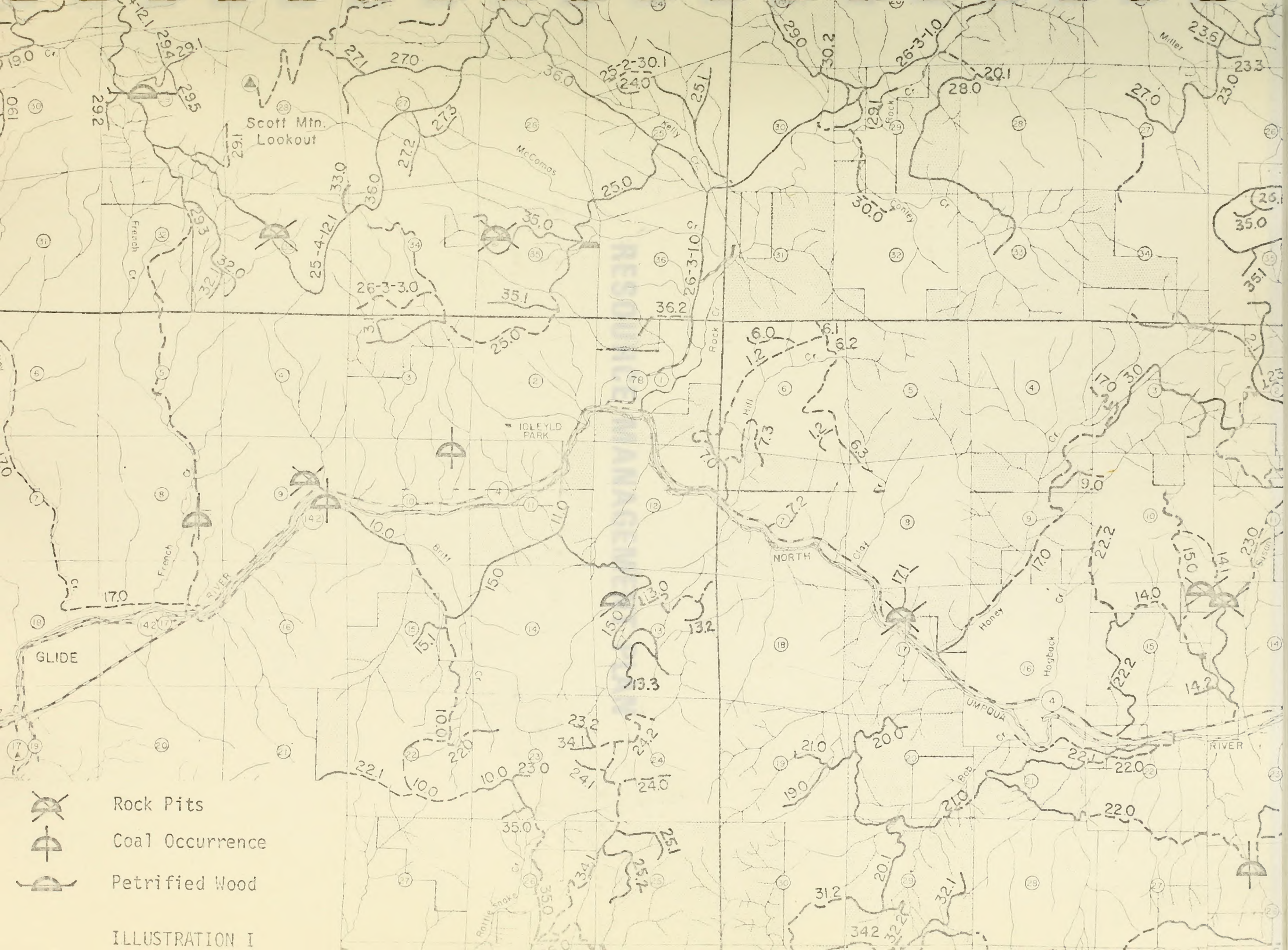


ILLUSTRATION I

RESOURCE MANAGEMENT PLAN

RESOURCE MANAGEMENT PLAN

Very valuable natural resources exist within the North Umpqua Canyon and a sometimes very delicate interrelationship links them together. Many examples of over-lapping values occur.

The premise of this resource management plan is that the value of these resources to society, as a whole, can be maximized without mutual degradation if priorities are set and planning is adequate. This is the essence of multiple use and this is a multiple-use plan. It is obvious that multiple use does not entail all uses occurring on the same acre at the same time. This section of the plan provides the general framework within which priorities are assigned, discrimination is made between over-lapping values and constraints are identified.

Pure cold water with its concomitant fishery and spectacular scenery are abundant resources in the canyon - existing nearly inseparably with the foregoing are timber and recreation resource potentials.

The premise governing this plan is that the canyon's superb scenery will be maintained. This does not imply that changeability is precluded, for in some cases, the vegetation will be gradually changed to young trees while in others it will remain largely untouched. It is further premised that the current level of water quality and aquatic habitat will be, at least maintained, or improved when possible. Timber and recreation management are designed to maintain a quality fishery on the North Umpqua.

Successful accomplishment of these aims will maximize benefits to many people of diverse interests and result in true multiple use of the resource in perpetuity.

RESOURCE MANAGEMENT ACTIVITIES

Landscape Management

Visual impacts from a timber management point of view are to be determined primarily as they relate to the viewer on the North Umpqua Highway, the river, and designated or developed recreation sites.

Secondary visual impact areas are the Bob Butte Road and trails extending to regions somewhat removed from the river environs.

All other viewing positions in the planning area are located well away from the river and recreation roads.

Consideration of visual impact will be made in all zones but it will occupy a descending order of priority in the decision-making process as the viewer progresses from the North Umpqua Highway to the back country.

North Umpqua Highway seen area has been mapped in a general way. Refinements will occur as the ground is covered more thoroughly in the development of management plans for specific acreages. This will require alterations on the map.

Techniques of landscape management in timber management and road construction are rapidly becoming available in published material so will not be reiterated in detail here. The general application, however, will be discussed as it applies to the area under study.

Foreground

The "seen area" is divided into three zones: Foreground, Middleground and Background. Foreground zone is the immediate environment of the viewer. It is the area in which he perceives individual plants, bushes, limbs and leaves. The texture of the Foreground is determined by individual leaves, fronds, branch patterns, bark and so on. It varies in depth from a few feet where the dense forest and topography close in to several hundred feet. Even where vision is limited, sensations such as smoke, dust, smell and noise can extend the effective foreground a considerable distance beyond his visual limit.

In the case of the North Umpqua, the Foreground on gentle land consists of the roadside and riparian vegetation to a minimum distance of 200' to 300' depending on understory vegetation.

On steeper ground, the Foreground Zone extends from roadside or river bank to the nearest break in topography usually not more than several hundred feet, but occasionally more.

Bob Butte Road Foreground Zone extends from road edge to a few hundred feet for the flat or benchy ground over which much of the road lies. Topography governs in most cases. The road crosses steep ground in the vicinity of Bob Butte which causes the effective foreground to constrict in extent in timbered slopes. On the same steep ground in old clearcut areas the brush and reproduction restrict the foreground to the immediate roadside. Here, as in other areas along both the Bob Butte and North Umpqua Roads, vegetation next to the road forms an effective close screen. In some instances, this screen is critical in maintaining a good visual aspect and its protection is imperative.

Management within the Foreground Zone is designed with esthetics as the primary objective. This is not to be construed as banning cutting entirely but timber removal will be aimed at attaining or preserving esthetic values. This means that management will be designed to promote a thrifty, healthy, natural appearing forest. Some lands will be classified as inoperable under present technologic and economic situations. Timber severance on these lands for any purpose will be indefinitely suspended until such time as they can be operated without damage. Steep ground, thin soils and proximity to the river bank or road are some reasons why land will be classified as inoperable.

Middleground

The Middleground extends away from the Foreground Zone and lies between it and the Background Zone. This is the zone in which trees and objects form the patterns and textures of the landscape. Land forms begin to dominate as ridgelines and drainages become evident. Individual trees are still recognizable on skylines. Overall forms and parts begin to draw together to form patterns.

The Middleground generally encompasses the area beginning a 1/4 to 1/2 mile from the observer and extending to the near edge of the background at 3-5 miles distance. This includes the greatest acreage of the planning area. The Middleground is consequently very critical because it dominates the view and harbors the preponderant forest resources within the study zone.

Background

The Background lies from the outer border of the middleground at 3-5 miles to the limit of sight. This is the region where textures soften, colors are muted and grayed. Ridgelines and sky dominate form and only the grosser patterns such as canyons and drastic vegetation changes are discernible. Very little land lies within the Background in the planning area and that which does, lies at the transition from Middleground to Background. Scott Mountain, as viewed from Glide, is an example of the Background. Management of the Background will be to mitigate stark vegetation change lines and poor skyline appearances.

Forest Management

Management of the O&C lands is governed by the O&C Act of 1937. Some of the Act's provisions are:

> "Lands...classified as timberlands...be managed...for permanent forest production - the timber thereon be sold, cut, and removed in conformity with the principal (sic) of sustained yield for the purpose of providing a permanent source of timber supply, protecting watersheds, regulating streamflow, and contributing to the economic stability of local communities and industries, and providing recreational facilities (sic) - the annual productive capacity for such lands should be determined and declared as promptly as possible...-...not less than the annual sustained yield capacity...shall be sold annually, or so much thereof as can be sold at reasonable prices on a normal market."

This law, passed in 1937, was the nation's first multiple-use legislation. The intent and purpose of the Act is the sustained yield of all forest resources needed for community stability. Timber must be offered for sale in an amount equal to the sustained annual rate of production and this is computed for the district as a whole, then apportioned to each forest management area. All lands except those which have been zoned for such purposes as recreation sites and environmental protection of streams, fragile soils and esthetics have been used in the allowable cut base.

The intensive silviculture used in managing Douglas-fir forests will be modified in the three landscape management zones to meet the further management objectives extant there. The following section under the various pertinent headings, describes the general nature of these techniques, the objectives desired and the general appearance of the results of these modifications to normal intensive Douglas-fir silviculture.

Modified harvest activities in the vicinity of the river will aim at maintaining an essentially continually wooded environment which will provide ample opportunity for off trail hiking and enjoyment of the relatively undisturbed environment. The advantages of trail oriented recreation are manifest. Horsemen will be afforded the opportunity to use an area reasonably close to the Roseburg area. Wildflowers and other plants will be undisturbed in the foreground zone for the enjoyment of amateur botanists. Ecologists, both amateur and professional will find conditions ranging from undisturbed to those in pioneer stage in plant succession.

Along the North Umpqua River and Highway, 1978 acres have been placed in a reduced yield status for purposes of protecting the foreground. The average stand age will be maintained at 160 years compared to the normal 80 years at rotation age for managed forests. Annual mortality has been determined to be about 176 board feet per acre per year in a 160-years-old stand and this will constitute the average annual cut necessary to maintain a thrifty stand and salvage dead and dying timber. 10/ This represents a reduction in yield of 67% under the level which would be maintained if the lands were managed for timber production only.

In the foreground, carefully planned clearcutting will be used only where vista points can, and should, be developed and to create openings or glades to engender visual interest or opportunities to observe game and other creatures.

In some cases, pathologic or storm damage may justify limited clearcutting. In such situations, clearcutting will be used only where the stand is so damaged or decadent that scenic values or safety for the adjacent stand or recreationists cannot be maintained by selective removal of individual trees.

Middleground

Whenever topography and timber stand conditions permit, continuous canopy management will govern middleground timber harvest. This will be accomplished through group selection, single tree selection, shelterwood and narrow strip clearcuts which will be oriented so as not to show from important viewing perspectives.

It has been estimated that suitable topography exists to permit 40% of the ground to be tractor logged while the remaining 60% will be cable logged. Tractor logged areas will be partially cut to retain a green appearance throughout the harvest period. Rubber-tired skidders may be required in suitable circumstances to reduce disturbance.

Clearcutting will be used as a management tool in the middleground, but only where steep ground prohibits the use of tractors or skidders and clearcuts can be molded into the general scene without untoward intrusion. Individual circumstances will vary, but these units will generally be in the size range of 5 to 15 acres. Larger units may be justified where patch cutting would be disruptive. Clearcuts will be designed with irregular natural appearing boundaries and feathered edges. Skylines will not have standing walls of timber left. Layout will ensure that skyline trees are either totally removed or the cutting lines cross the ridge at an angle which gives a smooth transition. A few scraggly trees left standing on the skyline are very unsightly and will be removed.

Landings will be small and located out of view wherever possible. Waste materials from landing construction will be end-hauled whenever it would otherwise be visible from a primary perspective point. Landings will be thoroughly cleaned up upon completion of the yarding. In many cases landings will be ripped and treated to hasten their revegetation. Some situations may require regrading of the surface to obtain a more natural contour. Cutbanks for landings may create a visual problem and will be treated as prescribed for road cuts. Dressing with topsoil may be required in some circumstances. Where sidecast of yarding roads has created landing visibility, mulching and seeding will promote immediate soil stabilization and green-up while planting with large stock will care for the long term. Mulching and seeding of landings will be done in all cases.

Clean yarding may be required in some situations. Efforts will be expended to increase utilization of cull or marginal logs. Slash disposal will have to be carefully done to insure rapid reforestation without scorched and damaged soil.

High lead or skyline cable equipment will be used in many other instances. Aerial yarding equipment will be used where soil disturbance must be kept to minimal levels or nil. Where unusual instability or potential visual problems exist, road density can be lowered through the employment of aerial yarding systems. Developments in portable cable yarding equipment coupled with increasing unavailability of timber on fragile or sensitive sites should result in equipment being developed which can operate in such areas with minimal damage.

Another possibility which could enjoy limited deployment is helicopter logging to permit selective removal with little damage.

Blind Areas

In areas out of view of primary and secondary viewing perspectives, greater latitude in management activities can be had. Here, visual impact is non-existent off-site and the additional cost in terms of lost forest production, management investment, and more difficult harvesting is not justified. Consideration for off-site effects of on-site activities as well as the maintenance of continued site productivity will dominate management decisions here.

Reforestation and Intensive Forest Management Practices

Reforestation is practiced in one form or another on all acreages cut. Layout and size of cutting areas is accomplished with cognizance of such factors as slope aspect, soil type and depth, and success of previous reforestation efforts in the area. Burning of slash will be done where mineral soil must be exposed and residual material or brush is too heavy for seedling survival. Equipment type for yarding is restricted. Soil and vegetation damage is controlled by designating skid trails, in some cases, and by halting yarding during wet soil conditions. Where conditions are amenable, natural reproduction is relied upon for restocking and surveys are made subsequently to determine if natural seeding has been adequate. It if has not, then nursery stock will be hand planted. On all clearcuts, nursery stock will be planted the first winter after logging. Douglas-fir is almost exclusively planted and it is grown from seed obtained in the same zone and near the same elevation as the location for which it is intended. Within 10 years, seedlings from genetically superior Douglas-fir will be available for planting. Plantation failures are replanted as stock availability permits.

Blister-rust resistant sugar pines are becoming available now and will be interplanted in older units which previously supported mixed pine and Douglas-fir stands. An attempt will be made to approximate the original stand composition in this program. Previous decimation by blister-rust thwarted any attempt at maintaining sugar and white pines in young stands, but the development of rust-resistant stock holds great promise.

Seeding has been halted since endrin, which was used as a rodent repellent coating on seeds, has been banned because of its potential environmental hazard. A suitable repellent substitute to date has not been found, and seed losses to rodents have made this method of reforestation fruitless.

Intensive forest management practices such as thinning will be practiced on the middle and background zones wherever possible. Young stands overstocked with trees will be precommercially thinned to desired spacing. A regime of commercial thinning at 10-to-20-year intervals will follow up to the final harvest cut at age 80. This practice is compatible with the landscape management guidelines spelled out earlier since thinning is a form of continuous canopy management up to the final harvest cut.

Forest fertilization in the middle and background zones is anticipated for the future when this practice becomes operational in the BLM. Protective measures will be taken to prevent fertilizers from degrading water quality.

Transportation Plan

The transportation plan for this area has been developed to accommodate foreseeable uses. These are primarily timber management and recreation. Roads are planned to be away from streams and out of view to the greatest attainable extent. Widths and standards are dependent upon the use of the road and will vary accordingly. The Bob Butte Road, for example, will be constructed to two-lane standards to safely accommodate both recreation and commercial traffic while minor spurs will be very low standard roads.

Density of the road net and its location within the planning area are mainly determined by the capabilities of logging systems (including aerial logging systems) and topographic features. Aerial logging systems permit greater distances between roads, but have the corollary effect of requiring larger cutting units. The important decision involved the selection as to where the internal south side road net would exit the area and join the existing public transportation system. The Swiftwater Bridge site was determined to be the best access point after due consideration of all resources involved.

The following section outlines the standards, and the design and construction restraints to be applied to roads within the planning area. It also deals with trail access.

Road Type and Standard

Access Roads: The Bob Butte Road will be the main route to south side portions of the planning area. It will be constructed to two-lane paved standards to accommodate the expected concentrated traffic mix of recreation vehicles and commercial traffic. It is designed to scenic standards and will be so maintained.

Mainline Spurs: Mainline spurs will be of minimum standards consistent with their purpose. Except for roads expected to carry sustained heavy hauling or recreational traffic, running surfaces will be on the order of 12 feet with adequate turnouts provided. All mainline spurs will receive adequate surfacing.

Secondary spur roads will be as narrow as possible and conform to the land in a manner that will minimize ground disturbance. Basic alignment will assure that they are negotiable by the expected equipment traffic, but beyond that criterion, topographic conformity will govern. Many will be closed and "put to bed" upon completion of use.

General Design and Construction Criteria

Primary emphasis on visual management pertains to the view from the river, highway, associated recreation sites, areas of residence and the Bob Butte Road. Activities in seen-area portions of foreground, middleground and background zones will be designed and promulgated in strict accordance with scenery preservation principles. Although the previously delineated perspectives dominate planning, the view of a traveller on the mainline and spur roads need not necessarily be neglected. Landscape design should be done by a landscape architect or someone trained in design principles and sensitive to esthetic considerations. However, layout men and contract administrators given training in landscape design principles and possessing an esthetic awareness can accomplsih a great deal toward obtaining roads which are both functional and pleasant in appearance. Detailed planning for areas critical from an esthetic standpoint will be done under the direction of a qualified landscape architect.

Recognizing that roads are probably the most disruptive elements in a visual composition, great care and consideration will go into their planning, design and construction.

The following criteria shall govern the development of all management access roads:

1. Layout and design should break up the linear elements of a road crossing a distant hillside as much as possible.

2. Roads will be kept out of sight of primary viewing perspectives and as much out of view of other view points as possible and will not be constructed in areas possessing inadequate screening until growth has proceeded to the point where screening will be effective.

3. Alignment will follow the topography and be on or near topographic breaks and benches as often as possible.

4. Advantage will be taken of changes in cover, rock outcrops, cliffs and so on, to mask the road.

5. Running the grade and right-of-way directly through interesting rock outcrops, unusual trees or glades containing waterfalls shall be avoided whenever possible. Leaving these features and their immediate environment intact adds to the visual interest for the road user if the road is located to develop the view for the traveller.

6. Long views along adjoining road alignments will be avoided by keeping junctions close to right angles and designing curves into the intersecting roads a safe distance back from the junction.

7. Long tangents shall be avoided by designing sweeping curves instead.

8. Ridge crossings shall be located in saddles or hidden by the topography. Leaving a notch or "highwall" in standing skyline timber is to be avoided.

9. Road locations will avoid stream bottoms and will not parallel streams within a distance which will allow clearing or construction debris to affect the immediate stream environment.

10. Rolling of grades will be used to minimize earth work and to get a road down to, across, and away from streams quickly.

11. Once tentative alignment is known and having been initially determined by utilizing general soil maps, an intensive soil survey of the road shall be completed if either the general soil map or field evidence indicates potential problems. Potential slides will be included as part of the design process when the alignment can't be moved to avoid them. Planning will provide for their removal or stabilization with riprap, perforated pipe or whatever is necessary during the construction process.

12. Balanced roads shall be constructed when possible. Where wasting is necessary, it will be allowed only where the waste material will not cause visual or water-quality damages. All borrow areas will be designated in advance. Randomized wasting and borrowing will be prohibited.

13. Wherever possible, rock pits and borrow areas will be located out of view on curving spurs and be reclaimed.

14. Road cuts in rock shall be as steep as possible while treatment of cuts in soil, weathered or unconsolidated rock will vary. Care will be required in blasting so that rock is broken up but not excavated by the charge. Excavation will be done by equipment, which will lessen the chance of rock-scarred and broken-topped trees. Large boulders shall not be rolled over steep hillsides for disposal. Generally, flat benches either exist or can be easily constructed within reasonable distances of these rocks, onto which they can be gently moved. Lacking such disposal sites, the rocks will be drilled and shot in place for disposal. Daylighting of through cuts will be avoided as a general rule.

15. All cut and fill surfaces as well as waste areas will be mulched and seeded except where predominantly rock faces occur.

16. Drainage will be provided by use of sufficient-sized, adequately-spaced and properly-emplaced culvert pipes.

17. In streams where fish use exists, culverts will be installed and maintained in a manner which will facilitate their passage. Downspouts or their equivalents will be used where necessary. If threat of runoff exists, they will be installed concurrently with the culverts and in any event, prior to October 1 of the current year.

18. Culverts shall be installed in live streams as soon as practical after disturbance by logging or road building equipment. The practice of yarding right-of-way logs across these streams and crossing them to refuel equipment will be avoided. Instead, logs and debris will be removed from the immediate culvert site and the pipe installed before further crossings are made. Culverts shall be of muted color, compatible with the natural environment.

19. Ditches will be no wider or deeper than necessary.

20. Clearing debris will be disposed of by burning, burying, or scattering in reserve timber.

21. Contractor debris such as oil and antifreeze cans, discarded equipment parts, cable, damaged culvert and other such debris will not be left lying along roads and landings or strewn about in the brush.

22. Oil from equipment crankcases, fuel supplies and hydraulic systems will be required to be controlled so as not to sterilize ground areas or enter surface waters.

23. Aggregate stockpiles, culvert and equipment storage areas will be located away from mainline roads, out of view on short curving spurs.

24. Signs will be concise, sparingly located, and easily read.

25. Pioneering of more road than can be completed to final grade prior to the wet season will not be allowed. Surfacing will be applied to new roads before wet weather occurs and before hauling is permitted.

26. Before wet weather occurs, all skid roads will be obliterated or adequately water-barred. Similarly, all spurs to be abandoned will be cross-ditched or water-barred and blockaded where necessary.

27. Maintenance shall be adequate and prompt. In removing slide material, part of the operation will include reshaping the backslope to both improve its appearance and to slope the remaining material below the angle of repose.

28. Ditches will not be pulled except when absolutely necessary and then only those portions which are blocked. Ditch line vegetation will not be disturbed except where drainage is seriously impeded or sight is impaired. Repair will consist of removing only as much vegetation as is necessary to rectify the situation.

29. Grading will shape the surface so that outslope sections drain rapidly overboard and ditched sections likewise drain rapidly to the ditch. No berms will be left except to protect fills.

30. Snow plowing shall be required even though vehicles can negotiate a rocked road without it, thus preventing accumulations of water in the wheel tracks by removing snow berms from both outer edges and ditches.

31. Mechanical control of roadside vegetation shall be utilized where herbicides could cause unsightly results or hazard to water courses.

32. All private road construction occurring on BLM issued easements will conform to the same standards as government roads. Adequate maintenance is necessary to preserve water quality and failure by private land owners to perform necessary maintenance on a road crossing BLM land will result in action by BLM to repair the road and recover the cost from the owner.

Bob Butte Access Road

The Swiftwater Bridge and Bob Butte Road at Rock Creek will provide the spine of a new transportation network as well as re-connect the remaining old system.

Many roads and alternatives were studied in developing this transportation system for the south side of the river.

Construction of the Bob Butte Access Road for land management purposes automatically insures public use will occur in a greater or lesser degree. Where such public utilization can reasonably be expected to be high as in the case of the Bob Butte Road, safety must be designed and built into the road. In order to safely accommodate both public recreational traffic as well as logging traffic, a two-lane paved access road was felt to be necessary. This road will be blacktop surfaced. The design speed will be 25 to 30 mph but many portions will be capable of supporting higher speeds. Signing of tight turns will be done to warn higher speed traffic of the hazard.

Although safety will be an important criterion, the road is not being designed solely for engineering excellence to accommodate as high a speed as possible. It is, rather, being designed to conform to the landforms. This will result in sharper turns, shorter tangents, greater grade breaks and steeper grades. The result of this will be lower fills, less excavation and a slightly slower road, but one which is significantly more pleasant visually because of its fit with the land.

Access to approximately one-third of the planning area is via this access road. Tributary statistics are as follows:

Ownership	Total Acres	Cutover	Remaining Merch. Acres	Remaining Merch. Volume
BLM	5,410	1,242	4,168	183,392
Private	4,180	2,555	1,625	71,500
Total	9,590	3,797	5,793	254,892

Interconnecting trails at 2-mile intervals will be constructed from the Bob Butte Road. This will permit parking at designated places on the road and hiking down to the river to go fishing, rock hounding or other such pursuits. Motorized conveyances will not be permitted on the Tioga Trail or on connecting trails from the Bob Butte Road.

Trails

Several trails are proposed as part of the management of this area. Their purpose is to enable people, through a limited expenditure of personal effort, to avail themselves to a quality outdoor experience. At the same time, trails will protect the resource significantly by keeping motor vehicles away from certain areas and confining foot or horse traffic to defined areas of travel.

Access to the south bank of the river will be by trail only. This will serve to protect the fishery as well as the land and water resource from over use by restricting use by the casual motorist to the existing north shore access.

All trails will be carefully located and designed so they exhibit a pleasant environment for the user and have a minimal impact on area esthetics and soils.

Tioga Trail

Access to the south side river bank will be only via the proposed Tioga Trail.

This trail, named after the pioneer name for the Rock Creek - North Umpqua confluence area, will extend from Swiftwater Park to the Forest Boundary, where it is hoped that eventually a connection will be made to an extension of the Mott Trail coming from Steamboat. Downstream, this trail will connect Swiftwater with the popular fishing holes at the Narrows and can eventually be extended downstream to the south line of Section 9 near the Lone Rock Wayside. Some easements will be required but the bulk of this system will lie on Government land.

Use of the trail will be restricted to foot or horse travel. The trail will be located as much as possible out of sight from the other (north) side of the river. It will also be designed to confine traffic to the developed trail as much as possible.

Interpretive Trails

Interpretive and demonstration resource management trails will be developed in the later stages of the Swiftwater Site development. One of these trails will extend from Swiftwater to the Rock Creek Fish Hatchery and Douglas Forest Protective Association (DFPA) fireguard stations. From the hatchery, it can extend a short distance up the bluff southeast of the hatchery for an easily reached viewpoint. The county has agreed to place a sidewalk on the Rock Creek bridge to accommodate this trail.

Susan Creek Trail

The trail at Susan Creek is not well known or marked and use has been relatively light. With the development of Swiftwater and an interpretive program, this trail can become a valuable adjunct to the North Umpqua's recreation program. The presence of a picnic area at this very beautiful site, as well as the Indian mounds, presents a dual attraction. The trail crosses the powerline right-of-way which has re-vegetated with big leaf maple, brush and a few Douglas-firs. This provides a somewhat interesting change in texture in going from timber to an open area and back into timber again in spite of the innate visual problems of cleared rights-of-way. Future maintenance of right-of-way areas visible from this trail should consist of pruning or similar moderate methods of vegetation control as opposed to mass destruction of cover by bulldozing or heavy broadcast herbicide application.

A trail will be constructed to the upper falls on the section line of 1 and 2 when and if demands are sufficient to warrant it.

Chimney Rock Trail

A trail to Chimney Rock and its natural arch will be developed. This will be a relatively short trail since logging and jeep roads approach it from the Honey Creek area.

Other Trail Systems

Rocky Run and South Shores recreation sites, if developed, will have trails for their internal circulation as well as associated interpretive and points of interest trails. The exact nature and location of these trails will have to await the design of the sites themselves.

Other trail opportunities exist with cliffs, caves, rock outcrops and other natural features being the focal points, but exact locations of trails reaching these points will have to await further on-the-ground planning.

Recreation Site Development - Swiftwater

Swiftwater Recreation Site will be the first overnight recreational development by the BLM in the North Umpqua Canyon. Design criteria dictate that this be a first-class development, both from the point of view of the camper accustomed to sophisticated facilities as well as to the individual interested in the natural, more primitive attributes of this area. Esthetics and environmental compatibility will govern the design and development of the total package. Structures, trails, and vehicle ways will blend with and complement the natural features of the site rather than dominate or conquer it. Even though muted lines, earth hues and retention of natural vegetation suppress the evidence of man's intrusion, modern comforts and conveniences will be there. Concealed in the soil of carefully constructed trenches will be water, sewer, telephone and power conduits. Utilities are contained within the bridge with a capability for sewage to go either way across it. In this manner, connection can be made to the proposed public sewer system for Glide and Idleyld if it is constructed. Current plans call for treatment and disposal by septic tank and leach fields. Soil data indicates satisfactory conditions for this type of disposal without danger of contaminating the river with septic material.

Overnight camping spurs are located on a bench high above both the river and the access road where they cannot be seen from either.

In the day-use area, picnic units will be discreetly placed among the trees and brush, affording private enclaves for family or small group enjoyment. Also located on the lower bench are play areas consisting of small grassy glades constructed to appear as natural openings. Successful fishermen will find sinks, running water and a work area at the fish cleaning station for their use. On the easterly undeveloped fringes of the day-use area, a few tent campsites are contemplated. These will accommodate the person who wishes to share his camp with nature rather than self-contained recreational vehicles.

The total installation will be designed to remain unseen from the north side of the river. An additional possibility being investigated is that of providing foot access only for the day-use area. This would have the advantage of increasing space by placing parking elsewhere with corollary savings in increasing the screening to be retained.

At the north end of the Swiftwater Bridge there is a grove of fir trees on one side and an open gravelley area on the other. Prior to construction at the site, random camping and fishing uses were high. Sanitation consisted of two BLM trash barrels. Minimum sanitation for this site was considered to be a requisite part of the development of Swiftwater. Toilets, trash barrels and some picnic tables were initially proposed along with a parking area for fishermen and a routed map board for informational purposes. This proposal was presented to the District Advisory Board. A Board member who was also a member of the Douglas Timber Operators, took the plan to that group and their discussion centered around the means by which they could make a positive community contribution through the project. The operators finally settled on a proposal to contribute materials for the construction of a visitor information center. The proposal was presented to the BLM and accepted. This was considered to be an excellent opportunity to permit participation by other groups, clubs, and organizations. The Job Corps at Wolf Creek has been enlisted to provide construction skills and labor for building the structure. Other clubs and organizations have been approached and have expressed an interest in participating in some phase of the construction.

As initially planned, the structure will be octagonal in shape with overhanging eaves. It will contain restrooms, informational exhibits, and materials, and will be manned eventually. The design of both the building and the site is intended to incorporate them unobtrusively into the riparian environment. Topographic changes will be slight and the natural vegetation will be retained where possible. The building site has been fitted within a grove of trees at the east side of the bridge abutment so that none need be cut. One tree will have to be sacrificed to provide clearance for the entry road. Landscaping will utilize indigenous materials and native plant varieties.

Inside the structure an interpretive program will detail the natural and human history of the North Umpqua area. Many natural resources are managed and utilized in the North Umpqua area for the benefit of man. Exhibits will explain the management and use of the area's bounteous forest resources, the saga of the anadromous fish life cycle and management of this resource, watershed protection and its effect on downstream uses such as domestic water for Roseburg, Pacific Power & Light Company's hydro-electric installation and operation to minimize downstream water fluctuations, mineral and gem displays and so on. Recreation attractions will be listed and eventually, the center is planned to act as a clearinghouse for recreation accommodations from the Umpqua River Forks to Crater Lake National Park. Through this sytem, when campgrounds are full, people can be directed away from them and to areas which possess vacancies. Thus, needless traffic can be somewhat avoided and disruption of campers obviated. When all accommodations are full in the area covered, people will be told that there is no point in trying to stay in the area overnight. By this means, some management of recreational pressures and impacts can be instituted.

Other Sites Possessing Development Potential

Rocky Run - T. 26 S., R. 2 W., Sec. 17

Completion of Swiftwater will enable the district to better assess future trends of recreational demands. If development is indicated for this site, then pre-planning can shorten the necessary lead time.

This site can be reached either by a spur from the Bob Butte Road or from the river trail. Development of this site, if it occurs, can be staged with the initial development being trail oriented and later being adapted for vehicular access if necessary.

Pre-planning to date has included the preparation of a recreation site inventory record, a traverse map and soil survey of the area.

Preliminary investigation indicates that the site possess quality development potential. It is located on three terraces, the lower of which contained about five or six feet of water during the 1964 flood. The 1971 flood crested at bank level without inundating the terrace. Flood frequency is of a level which would permit either placement of low-capital investment or flood proof improvements on this bench. Placement of removable items such as picnic tables is also a possibility. Another pair of potential uses of this flat which are frequently overlooked in modern campground development is the provision of facilities for camping by mounted groups or tent campers. Neither group has requirements for utilities other than basic sanitation and water or for sophisiticated camp sites. Separation of these groups from other types of camping as well as each other, works to the mutual advantage of all concerned.

Development of the other flats is more flexible as far as design goes. If trail access only were used, most of the overnight camping area should be located on these upper flats. If vehicular access if provided, then day use, (organizational or community group) and overnight uses can be accommodated. The same esthetic and design criteria which apply to Swiftwater also will be applied to this site. The site, though large enough to develop suitably, is compact enough and surrounded by benches in such a way that its impact will be limited to the developed area itself. With improvements kept away from the banks, there will be no esthetic impact on the river itself.

South Shores - T. 26 S., R. 2 W., Secs. 22 & 23

Soil mapping and a recreation site survey have been completed. No topographic survey or preliminary site plan has been done.

Vehicular access could be obtained by extending the Bob Butte Road through the existing system near Smith's Ford to this site. If this system is developed, it would leave the old road at some point before visibility from the river becomes a problem and remain back on the benches away from the North Umpqua.

If the area is developed for trail-oriented recreation, the Tioga trail will serve to provide access from the river side, while connecting trails could drop down from the areas above the site. This is an extensive area of beautiful old-growth trees, saplings, and brush scattered over several benches. It has great development potential. The area is large enough and screened enough by changes in vegetation and topography that improvements and activities can be so sited as to be minimally evident outside of the immediate vicinity. Development here will seek to remain away from the river and maintain a natural environment both on site and off.

County land lies along the river to the west of this site and should be developed and administered as part of this site. Development will occur if Swiftwater and Rocky Run usage indicates the need. Incremental development will be likely and at the culmination, joint administration of the Susan Creek State Park and South Shores should be undertaken. This will promote efficiency in staffing and maintenance as well as in planning, design and operation.

Other Sites

Further development of overnight camping facilities could be at the Susan Creek State Park area in the flats north of the highway. Care will have to be exercised here, however, to insure that over development or "honky tonk" does not ensue.

The Myrtle Bench area in T. 26 S., R. 3 W., Sec. 11 will probably not be needed for development in the next decade but will be managed for its recreation potential. If increasing urbanization continues, its values will be for development as a local or small regional park.

Waysides

Existing waysides for day-use parking and picnicking will probably suffice for the coming eight to ten years. Beyond that time span, it may be necessary to develop such areas as Hill Creek Scale Station. Waysides will be developed to control and accommodate existing uses and efforts will be designed to prevent improper usage of areas from developing,which would result in the north shore becoming one long gravelled parking strip.

Watershed and Stream Protection

Watershed management as a science and an art, utilizes many techniques to effect changes in the quantity, quality, and timing of water released from a given watershed area. Changes in infiltration are accomplished through the use of spreaders, retention dams, and treatment of the soil surface, for example. Vegetation changes alter consumptive uses of water by plants, while plantations help in soil stabilization in other cases. In this plan management is designed to maximize soil retention and infiltration capacity consistent with the management of other resources present. This will result in retention of the present characteristics of the watershed.

All operations under this plan will provide for watershed and stream protection. This will result in conservation of the soil resource as well as protecting water quality in streams.

Protection of soil for reforestation purposes and maintenance of high-water quality for fisheries protection result in satisfying the plan's watershed management objectives. These are two examples of the close interrelationship between the management of surface resources and the management or conservation of the watershed.

The implementation of programs to alter water yield such as retention dams or spreading structures is not contemplated within this planning area.

Stream clearance projects will result in some changes in stream hydrology but with effort expended to leave natural material in most instances, no drastic changes will be effected. Removal of debris jams, adequate fill compaction and culvert size will minimize the chances of stream sluice outs. Rehabilitation efforts will be expended on the stream in Sections 23 and 26, T. 26 S., R. 2 W., which sluiced out. Channel clearing and stabilization combined with bank revegetation will restore this stream to approximately natural condition by interrupting the present recurrent debris flows.

Management proposals for insuring continued high-quality water yield from the watershed are listed in the section on Wildlife.

Some additional guidelines for watershed management are part of the soils survey of the planning area.

Recreation Management

Natural beauty ranks with the high-quality fishery as the greatest recreational assets extant in the North Umpqua Canyon. Management of the canyon's recreation program is designed with preservation of these qualities as its goal. Control of existing use coupled with careful accommodation of a limited portion of the expected future use will result in enhancement of the area's scenic resources rather than destruction of them.

Excessive or poorly planned recreation construction could result in destruction of some of the canyon's scenic values. However, some carefully sited and planned additional recreation development can be situated within the canyon without adversely affecting scenic beauty or even being visible at all from viewpoints outside of the site itself. The BLM plans to accommodate such uses where the unspoiled environment can be maintained.

Some means which will be utilized in achieving integration of developed sites into the natural scene are: the location of structures and openings well back from the banks; use of natural blending materials; siting to take advantage of indigenous screens and the removal of vehicles and parking areas from the immediate environment of the river. People control will be accomplished by designing trails in such manner as to discourage random use of the bank for access to the river.

Management of BLM lands along the river is predicated on maintaining a natural scenic appearance but does not preclude the inclusion of such developments as can be adequately provided without degradation of the area.

Douglas County maintains an excellent system of parks and recreation areas. Current demands and development emphasis are oriented to the coast and this is where county efforts are being expended. There are no plans for the county to extend their overnight facilities east of the present Whistler's Bend site.

The state of Oregon has indicated that it has no further facility development planned for the North Umpqua area either by expanding the present park at Susan Creek or by opening new sites.

Construction of a 20-unit camp at Dry Creek within the next five years will culminate Forest Service development along the main river. When this camp is completed, the intention is to close Apple and Island Creek campgrounds and later convert them to day-use areas. These two areas contain 17 units. All of the developable National Forest ground within the main canyon will be in use when Dry Creek is in operation.

The only remaining moderate ground is in BLM and Douglas County ownership. The BLM is currently planning the Swiftwater Development for construction in FY 1973 - 74. This will provide an additional 38 units for overnight camping and a similar number of picnic sites.

The BLM may develop sites at Rocky Run and South Shores. The time table will be contingent upon public-use figures and requirements for additional recreation sites in the Canyon in order to adequately maintain the quality of the resources. South Shores will likely be the first to be developed in that case. Rocky Run and possibly South Shores could be developed initially as minimum facilities accessible by trail only. They could remain trail oriented indefinitely with the possibility of later conversion of one or both sites to vehicular access if sufficient need developed later. This plan leaves the question of intensive development open to future decision, meanwhile the identified sites will be managed in a manner which will preserve and enhance their recreational attributes.

Wildlife and Fisheries Management

Upland Wildlife Habitat Maintenance or Improvement

Responsibility for the management of wildlife species rests with the Oregon State Game Commission. Bureau of Land Management lands provide habitat for these animals, however, and it is with this phase of their management that the BLM is involved.

Hunting pressure is not particularly great within the planning area and an under harvest of animals usually occurs. Lower south slopes and canyon areas adjacent to the river provide some winter range.

Extensive efforts to create greater areas of more suitable habitat for both upland and big game within the planning area are not warranted at the present time. Creation of suitable habitat for a big game will occur as an incidental to timber management activities and will result in the maintenance of a habitat condition similar to that which exists currently on the north side of the river. Some improvement on the south side due to renewed timber management activity in currently inaccessible regions will occur. In certain areas, corollary benefits due to the planting of game browse species will accrue. Areas such as the powerline right-of-way, portions of cut-over lands, reclaimed landings, rock pits and slides will be planted to redstem ceanothus, sub-clover and lana vetch. These species provide good browse for deer and elk. Their use in the preceding applications will aid in maintaining lower vegetation on rights-of-way, attract animals away from commercial tree reproduction, and stabilize and make productive waste areas in addition to the benefits which game will derive from them.

Fertilization of acreages also produces a greater quantity of more palatable browse.

Limited areas exist on BLM lands which provide suitable habitat for upland game. Management of the areas will be to maintain adequate cover and, where amenable, be planted to lana vetch, sub-clover, oats and other grains.

Snags and hollow trees suitable for, or in use as nesting sites for wood ducks, woodpeckers, raccoons and other birds or animals will be left whenever they constitute no immediate hazard. Nesting boxes can be put up at appropriate locations for wood ducks and nesting platforms installed for ospreys.

If future pressure on the wildlife resource increases sufficiently to warrant habitat manipulation, management will be instituted to maintain forage species in designated areas.

Localities potentially valuable for wildlife habitat manipulation have been identified in a general way on map No. 2. Should intensive habitat management be instituted, first priority will be given to enhancement of the areas near the river, and particularly the south slopes, which constitute the primary winter range sites.

Stream Habitat

As in terrestrial animals, management of the fish resource is the responsibility of the Oregon State Game Commission. Activities on BLM and intermingled lands can have a marked impact on the quality of the aquatic habitat. The objective of BLM management is the maintenance of the highest quality of water sustainable. This will insure suitable conditions for the production and maintenance of valuable cold water fish.

Streams within the planning area comprise three categories as they relate to anadromous fish management; water source only, spawning, and rearing, and holding and passage.

Water Source Only Streams

These are streams too small to provide habitat for trout or larger fish but which, cumulatively, can affect the water quality in larger streams below them.

All creeks within the planning area with the exception of Susan and Honey Creeks are water source only streams and thus mainly important for their potential effect on downstream quality. Some of the larger streams do, however, support resident trout. These streams have low summer flows and consequently have little or no impact on North Umpqua temperatures. Siltation of these streams due to poor road construction and location is the most likely problem which could occur and possibly result in some sediment being flushed into the main stem.

Most management proposals for ensuring high-quality water in these streams duplicate those requirements already stated for logging and road construction. A list if included here for the sake of completeness and to present factors which could have a direct adverse effect on water quality. These factors will be taken fully into account in planning individual activities which fall under the aegis of this management plan.

1. Logging or road building will be carefully coordinated to avoid periods of unfavorable weather and times of maximum recreational use.

2. Equipment, logs and other debris will be kept out of flowing streams.

3. Stabilization and establishment of vegetation on new and old road cuts and fills will be done.

4. Drainage culverts will be prevented from cutting road fills.

5. Prevention of excessive side casting and end hauling of waste material to designated waste areas will be required.

6. Contamination of stream flow by pesticides or herbicides will be prevented.

7. Preservation of sufficient vegetation on stream banks to insure water quality will be accomplished.

8. Campgrounds and public-use areas will be provided with adequate sanitary systems.

Streams Supporting Anadromous Fish and Resident Trout

Streams supporting trout and anadromous fish require management not only for water quality but for their fish populations as well. Management objectives will be to maintain or increase where possible the resident trout production of these streams. These streams are shown on map No. 1.

Honey Creek and Susan Creek are the only reaches of stream lying on BLM lands within the planning area which support anadromous fish. Honey Creek currently spawns more anadromous fish than it can rear while the falls in Section 14 limit Susan Creek's useable water to approximately 1/2 mile. No improvements are therefore contemplated to increase the anadromous production of these streams since they are already at their limit. Management will be to sustain or improve the current condition of the aquatic habitat.

Streamside Cover

A. Protection - Streamside cover and vegetation near waters that now are important aquatic habitats for fish will be protected.

1. Proposed land-use projects adjacent to streams will provide for protection of stream character.

2. Minimum size of undisturbed timbered corridors along streams will depend on the type of trees, stream width and the topography. Trees will be left adjacent to streams to protect the banks, provide a canopy for temperature control and catch and hold logs and debris on steep ground away from streams during timber harvest.

3. Public use will be controlled where vegetation is desired in such locations as spawning grounds, resting and holding areas and similar situations where cover is important to fish.

4. The use of herbicides adjacent to streams will be avoided while controlling unwanted vegetation. While direct kill of fish is possible, the loss of riparian vegetation is likely to be more damaging.

B. Restoration - Habitat destroyed by logging operations, unusual floods or other causes will be restored to the extent possible.

1. Establishment of trees, shrubs, and grasses along denuded stream banks is an effective tool for increasing cover for aquatic habitat. Trees, woody plants and sod-forming grasses suitable for the soil type, elevation and aspect of the site will be planted.

Roads and Trails

A. Existing Roads - Existing roads will be evaluated to determine their need. Unneeded and abandoned roads will be planted with grasses, forbs, and shrubs and trees to establish a near natural environment. In most cases, species suitable for browse and forage can be used in seeding as animals like to use road grades for trails.

B. New Roads - New roads will receive detailed planning to prevent encroachment on streams and destruction of streamside cover. Consideration will be given to stream improvement devices if channel changes are unavoidable.

C. Trails for Anglers - Trails for anglers and other users along stream courses will be limited to spurs leading to the shore of the streams. Main trails will be at a reasonable distance from the bank to protect vegetation. Angler access will be protected by obtaining and retaining rights-of-way for trails.

Pollution Elimination

A. Installations and Sanitary Systems - Proper and approved sanitary systems will be installed at all campgrounds and areas where public-use warrants.

B. Operations - Operations that cause direct silting or high turbidity in streams are sources of pollution and will be controlled properly.

1. Gravel mining from streams is not contemplated.

2. Equipment, logs and debris will be kept out of streams on all operations except where totally unavoidable. Culvert or bridge installation, for example, may require equipment being in the stream. In such cases, use of equipment in the stream will be restricted to those periods of time during which fishery damage will be minimal or non-existent. Corridors along fish producing streams will reduce direct contact of excessive debris with the stream. Directional falling and high-stumping will aid in keeping debris from streams. Any debris unavoidably entering the stream shall be removed as soon as possible and at least concurrently with yarding operations. Most cleaning will be by hand or cable to avoid further damaging the stream.

3. Stabilizing and establishing vegetation on old and new road cuts and fills will reduce erosion. Drainage culverts will be prevented from cutting road fills by culvert extensions and half rounds.

4. Winter logging and road building will be suspended when heavy precipitation causes degradation of water quality.

5. No sidecast material will be allowed to enter water courses. End hauling will be done where necessary.

C. Chemical changes in water quality will be prevented by method of operation.

1. Logging debris falling into streams will be minimized. Debris reduces the oxygen level and kills fish and aquatic organisms.

2. Log decking adjacent to or over streams will not be permitted. Tannic wastes change the chemical content of the water.

3. Pesticide or herbicide use will be coordinated with all concerned state or Federal agencies to prevent contamination of the aquatic environment. Use will be made only if no suitable alternatives exist. Safeguards include, but are not limited to: no spray areas near streams, correct timing, intensive surveillance and use of minimum concentrations of chemicals.

Reservoirs

A. Small reservoirs can be constructed to store water for release during critical flows on some tributary streams to improve water quality, protect fish and the aquatic habitat. Sites in the headwaters of streams will be investigated and basic data recorded for future use in planning and programming these structures.

Spawning Areas

A. Protection - Protection of the present historic spawning grounds is essential and far less expensive than creating new spawning areas.

1. Location of Spawning Areas - Spawning areas on the main stem are generally known. Spawning occurs throughout the available reaches of Honey and Susan Creeks.

2. Preservation of Timbered Corridors - Blocks of timber or corridors of vegetation will be left along all anadromous fish-use reaches to protect spawning grounds. These areas are considered high-risk locations needing special harvest techniques.

3. Visitor Control - Every effort will be made to isolate man's activities from important fish spawning areas. Stream disturbance is especially critical to fish during spawning and incubation of eggs. Most spawning within the planning area occurs during winter and early spring when people are not usually present in large numbers.

a. Recreation sites will either not be located adjacent to known spawning grounds on small streams or will be designed in a manner not to interfere with them. Large fish, such as salmon and steelhead, are especially vulnerable while spawning on shallow gravel bars. Fencing may be necessary in some locations if the area has high public interest.

b. Roads will bypass spawning areas and be located away from important streams to the greatest extent possible.

4. Prevention of Undesirable Operations - Operations that would deposit sediment or fine sand on gravel spawning bars will be prevented. Sediment impacts the small spaces between the gravel and reduces permeability of the gravel. The result is a lack of oxygen to the developing eggs. The fry that have hatched also have a difficult time moving up through the gravel and mortalities are high.

a. Mining - Leases will contain stipulations to prevent removal of spawning gravel and provision to eliminate siltation and pollution of streams. We will attempt to have critical areas or high recreation and esthetic value areas withdrawn from mineral entry. Mining is not foreseen within this area.

b. Logging - The use of adequate special protective measures in logging operations located adjacent to or above valuable spawning grounds will be required.

Holding, Resting and Passage Areas

A. The North Umpqua contains migratory fish that require holding water. Most of its value in the confines of the planning area is for holding and passage, as it contains very few suitable areas for spawning and rearing. Examples are spring Chinook salmon, summer steelhead, and sea-run cutthroat trout. Adult fish seek protection in deep runs, holes and pools for periods of from a few days to nearly a year in fresh water before spawning. Large fish are vulnerable to disturbance of the habitat and to activities of man. Deep pools provide specific types of aquatic food, protection, and rearing areas for resident fish and young of migratory fish. Migratory fish must have easy passage to upstream areas and may require resting locations along the migration route.

1. Protection - Activities near existing resting and holding waters will be restricted. The important areas will be identified before protection is suggested.

a. Campgrounds and recreation areas will not be constructed near known fish holding and resting areas.

b. Isolation of these locations is best attained by restricting road and trail construction.

c. Swimming and water sports in pools used as holding areas by large fish will be discouraged or prohibited. Cold water in the North Umpqua provides a natural form of dissuasion.

d. Extreme care will be taken in harvesting resources above holding and resting areas. Fish confined to holding pools are vulnerable to increased water temperatures and pollutants.

e. Additional state restrictions on fishing can be suggested for problem areas if they develop. Normally, fishing is controlled by deadlines above which no angling is permitted for fish in need of protection. This is so on the North Umpqua River.

f. Timbered canopies and streamside understory adjacent to known resting or holding waters will be preserved by special provisions in timber sale, road building and other contracts.

2. Restoration and Improvements - Improvement of existing or construction of new resting and holding areas will be done where opportunities exist.

a. Pools filled with gravel, rock and silt from past floods can be excavated with heavy equipment at times selected by the State Game Commission that will be least harmful to aquatic life. The work would not be attempted when adult fish are in the stream or during periods when eggs or fry are in the gravel.

b. Streams containing high water velocities for long distances can be improved by slowing water flow with drop structures.

c. Channel changes required by road location are often devoid of obstructions that slow water flow or provide resting areas for migrating fish. Rock placements have been very successful in providing resting areas.

B. Rearing Areas - Recently hatched small fry (1/2 to 2 inches) seek food and cover in shallow areas near the main stream in shallow backwaters, and in aquatic vegetation. Most natural streams have such locations and there is normally little need for providing additional habitat. Exceptions may be channelized portions of streams, sections of streams relocated because of road construction, or waters in natural canyons. Silt reduction in streams will enhance rearing of fish. Growth rate is reduced as turbidities increase. Life history of the fish to be managed will determine the type of rearing area needed for protection or improvement.

1. Natural pools, which provide good rearing areas for some fish (2-4 inches in length), will be maintained wherever possible and cleaned out when choked with natural or man-caused debris.

The best habitat is obtained when pools are in even number with riffles or shallow areas. Artificial pools may be formed by drop structures or excavations. These will be small and simulate natural environment. They could improve some streams having too high a gradient to be useful for spawning and rearing. Most trout and some species of young salmon prefer to rear in faster portions of streams near large rubble and will not be as numerous in pools.

Migration of Fish - The opportunity for free movement within or between various bodies of water may be a limiting factor in the life history of many fish. Free movement will be maintained or restored.

A. Downstream migration is an important consideration in stream improvement. Anadromous fish, at designated times in their life history, migrate from a fresh water environment to estuarine areas and eventually to the sea. Many fresh water species of fish make shorter downstream migrations. Intrastream or interstream movements are common to many fresh water fish.

1. Irrigation and mining diversions are always a potential source of mortality for migrating fish. Although little likelihood exists for development of either use on the planning area, some precautions for preservation of fish would be necessary should they be instituted. Screening of intakes would be done in conformity with Game Commission and Federal Agency recommendations.

2. Over-appropriation or seasonal low flows of water may cause isolation of fish in wide stream channels. Narrow, deep channels can be constructed in the stream bed to concentrate and carry water through critical areas during low flows. Problems due to low flows are not likely within the planning area although some stranding of fish does occur due to rapid level changes on the North Umpqua.

B. Upstream Migration - Anadromous fish migrating from the ocean into headwater streams need free passage to historic spawning grounds. Upstream movement of resident fish is also important, but complete removal of all obstructions in small tributary streams would not be attempted without approval of the Game Commission. Debris or natural obstructions may appear to be barriers at some water stages, but passage of fish may be possible at high water.

1. Log jam and debris removal for upstream fish passage is an important habitat improvement function on all public lands.

2. Prevention of logging debris from entering the stream is of primary importance. Cleanup of debris after logging is a contract requirement of all BLM timber sales. One of the primary values of timbered corridors or leave strips is the reduction of logging debris in streams.

3. Stream restoration by log jam and debris removal is a major program in Pacific Coast States. Cooperation in the programs with responsible agencies can be an important contribution to stream improvement work affecting migratory, fish.

a. Prompt stream clearance during logging by removal of debris is important to prevent rapid depletion of dissolved oxygen in the water.

b. Debris will be removed to a safe distance above the extreme high water mark to prevent re-entry during floods.

c. Heavy equipment will be kept out of the stream during cleanup. Care will be taken also to protect and minimize destruction of stream banks by equipment.

d. Migration barriers can be removed to make new habitat available to fish, open up new spawning grounds, and increase the potential rearing area. Removal of major obstacles such as Susan Creek falls is not contemplated. Minor barriers will be altered.

e. Removal of old logging debris from a stream will be done in consultation with the Game Commission.

4. Natural barriers can be a partial or total block to upstream migrating fish. Rock formations, falls, cascades and narrow canyons are examples of barriers to fish. Occasionally minor changes can improve fish passage without damaging other stream values.

a. Determining Desirability - Not all barriers need fish passage. Necessity will be determined by the desired management of fish present in the stream. Some races of fish require the presence of blockages in streams. Natural barriers may be necessary to prevent upstream migration of undesirable fish.

b. Providing Passage - Fish are passed over barriers by constructing formal fish ladders, blasting rock rock obstructions, cutting new channels or rerouting streams.

5. Artificial structures in streams may need modification to prevent serious blockage to migrant fish. Land control or use will not be given to individuals, firms, or agencies for new dams, roads or other structures unless adequate fish passage is provided.

a. Culverts with improper outfalls are often sources of fish blockage and repair or re-installation are stream improvement functions.

1. Constant inspection and repair is necessary to prevent eroded culvert outfalls that require physically impossible jumps for upstream migration of fish. This will be continued as it is presently being done.

2. Culverts installed on grades higher than 0.5 percent measured from the outfall may become a velocity barrier to fish. Where this occurs the problem will be improved by installing a new culvert on a zero grade, placing a culvert containing baffles for fish passage, or replacing it with an arch or bridge.

b. Collapsed structures - Bridges and culverts may collapse and cause serious blockages to fish. Temporary structures will be removed after use because of the additional hazard of adding silt and debris to the stream if washed out at high water.

c. Velocity barriers to migrant fish may result from inadequate culverts, poorly designed bridges, or stream channel changes. Treatments that reduce stream velocity will be undertaken where necessary.

Chemical treatment of streams is a common habitat improvement function. The use of rotenone and other chemicals to control fish populations is common.

Responsibility for chemical treatment of water to remove or change undesirable fish populations lies with the Oregon State Game Commission.

1. The Game Commission will be helped on chemical treatment projects for stream improvement on BLM administered lands in the following ways:

a. Personnel will be provided to assist in the project.

b. Equipment, such as loaders, vehicles, spray equipment, boats and other specialized apparatus will be provided on a temporary basis.

c. Financial support on cooperative projects will be considered.

d. Public access and recreation facilities on public lands prior to rehabilitation of waters will be provided.

e. Bureau personnel familiary with the area will assist state fisheries technicians during initial survey of the project.

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GLOSSARY OF TERMS

Allowable cut -	predetermined level of timber harvest - usually annual allowable cut
Anadromous (fish)	going from the sea to rivers to spawn
Aquifer	water bearing layer of soil, sand, gravel or rock
Aspect	directional orientation of sloped land
Backslope	refers to the cut slope above a road
Balanced roads	road so designed that excavation volume approximately equals embankments or fill volume. i.e. no soil material is allowed to "waste" or run over the hillside
Blister rust	i.e. White Pine blister rust - Cronartium ribicola - a fungal disease which attacks 5-needle pines including Western White Pine and Sugar Pine
Clearcut	a silvicultural system wherein all trees are cut or an area where all trees have been cut
Daylighting	constructing a road section through a narrow ridge so that the outside road shoulder coincides with the original ground line
End-hauling	road construction practice wherein excess earth is hauled to waste areas or to fill areas rather than disposed of by sidecasting
Estuarine	pertaining to estuaries or bays
High lead	a logging method whereby logs are pulled or yarded by cable to a spar or tower
High-grade cutting	practice of cutting only high value trees on an area
Landing	cleared, leveled area where logs are unhooked, sorted, and loaded on trucks
Layout	process of locating and marking cutting boundaries including roads and rights-of-way, on the ground

Patch-cutting	removal of timber by clearcutting areas generally ranging in size from 15 to 40 acres and spaced at fairly regular intervals across the landscape
Perched water table	a water bearing strata intercepted by an impermeable layer, usually clay, that results in a wet, bog area at a higher elevation than the water table in surrounding areas
Pioneer road	a preliminary construction following the location of the final road for the principal purpose of getting construction equipment to and from the job
Riprap	material, usually large rock, but also log or metal cribbing, or gabions, emplaced to protect shoreline from water action
Sapling	small trees usually 4" to 11" in diameter
Silviculture	the Art and Science of growing forest trees
Skidder	machine used for pulling logs to a landing
Skid road	path or trail made by pulling logs to a landing
Skyline	in this context a logging method which enables logs to be lifted clear of the ground
Slash	limbs, tops, and cull trees left from logging
Turbidity	the characteristic in water of being opaque or muddy from particles of extraneous matter

ENVIRONMENTAL ANALYSIS

DRAFT

ENVIRONMENTAL ANALYSIS RECORD

Title: Draft Environmental Analysis for the North Umpqua Canyon
Plan including the Bob Butte Road and Swiftwater
Recreation Site Developments.

I. Description of the Proposed Action and Background

A. Description - The North Umpqua Canyon Management Plan is a multiple use plan which proposes to re-open access to the south side of the North Umpqua River, detail the area's recreation composite and provide for timber management within designated landscape management zones.

Initial segments in the development include the Bob Butte Road connecting the Swiftwater Bridge with upstream timberlands and recreation sites on the river's south side. This will be a 20'-24' wide paved road about 8 miles long with 3 miles of connecting spurs. The Swiftwater Recreation Site will occupy an area south of the bridge of that name and include day use and overnight facilities. The recreation development will also include a Visitor Center at the bridge's north end.

The plan itself encloses an area of approximately 34,000 acres of intermingled private, County, and BLM lands. BLM lands cover about 16,000 acres and lie in the main canyon east of Glide and extending to the Umpqua National Forest boundary. (see map in management plan)

B. Background - BLM lands are predominately Oregon and California Railroad Grant Revested Lands (O&C along with a small area of Public Domain lands. These lands are administered under the provisions of the O&C Act of 1937 which provides in part: "Such portions of the revested Oregon and California Railroad and reconveyed Coos Bay Wagon Road grant lands as are or may hereafter come under the jurisdiction of the Department of the Interior, which have heretofore or may hereafter be classified as timberlands, and power-site lands valuable for timber, shall be managed, except as provided in Section 3 hereof, for permanent forest production, and the timber thereon shall be sold, cut, and removed in conformity with the principal* of sustained yield for the purpose of providing a permanent source of timber supply, protecting watersheds, regulating stream flow, and contributing to the economic stability of local communities and industries, and providing recreational facilties*".

Private lands belong mostly to large timber companies with a scattering of small owners.

*So in original

Timber harvest began in the '40's and grew in tempo through the '50's. Completion of Highway 138, the North Umpqua Highway, in 1964, facilitated both recreational and timber harvest development. Located largely at a water grade on the north bank, this road greatly affected the riverine environment.

Recreation use included resorts, campgrounds, anadromous fishery and extensive types. Developments began in the 1920's and '30's. Limited amounts of timber have been harvested over the years from spur roads which join the North Umpqua Highway. Access to the area south of the river was developed by a private bridge and a road which crossed the river in Section 22, T. 26 S., R. 2 W. This system developed the eastern portions of the area and connects, via a low standard fire protection road, to the Thunder Mtn. Road System which crosses the high ridge to the south into the Little River drainage. The bridge serving this area was destroyed in the 1964 Christmas Flood.

Prior to the bridge failure, most of the private timber was harvested, along with significant though lesser amounts of BLM timber. Remaining small amounts of private timber combined with the obvious expense dulled private incentive to reopen access to the area. Natural catastrophes continued to create damage to the remaining stands, meanwhile the allowable cut fraction represented by this unavailable land was obtained elsewhere in the Roseburg District. Recreation pressure in the North Umpqua accelerated particularly with completion of the North Umpqua Highway project.

Interest grew in re-establishing access to the southern area and the public was involved in several ways concerning alternative plans. The Roseburg District Advisory Board set an Ad Hoc Sub-committee to work analyzing the problem and it issued its recommendations in August 1968.

Representatives of the District Staff contacted personally many people who might conceivably have an interest in the BLM's plans and who lived within the Canyon Area above Glide to the Forest Boundary.

II. Content of the Plan

This analysis should be reviewed in conjunction with and following full review of the plan itself.

A. Purpose - The purpose of the North Umpqua Management Plan is to provide a comprehensive framework within which the utility value of resources extant in the Canyon can be maximized within the limits of their mutual compatibility. The plan addresses itself to the following goals:

1. The provision of a wide range of quality recreation experiences.

2. Enhancement of the wildlife resource.

3. Protection and enhancement of the North Umpqua Fishery.

4. Watershed protection and soil conservation.

5. Production of timber.

6. Conservation of environmental values.

7. Fire and insect protections.

8. Cooperation with intermingled landowners to assure compatible use and treatment of adjacent properties.

B. Actions Proposed - Action portions of the North Umpqua Management Plan mainly involve areas on the south side of the river which have lain quiescent since 1964. The impact of these activities which follow years of inactivity is analyzed. The impact of ongoing activities which will be continued on the north side and on certain portions of the south side can be inferred from the following analysis of south side action proposals.

1. Bob Butte Road - This involves the building of 8 miles of two lane paved access road extending from the Swiftwater Bridge to or near a recreation area in Section 23 opposite Susan Creek State Park. The road will be 20-24 feet wide and suitable for recreational as well as commercial log hauling traffic. This road is proposed to be constructed in segments, the first of which currently extends less than 1/4 mile from the end of the bridge. The second segment will extend 5 miles east to join the existing Thunder Mtn. Road on a switchback east of Bob Creek. This segment will include 3 miles of connecting spurs. The last segment will be 3 miles of new construction and reconstruction to link up with the proposed South Shores recreation area if this site is to be developed with road access.

The road averages a horizontal distance of 1000 feet from the river. In addition, there is vertical separation. No anadromous spawning water is crossed on tributaries.

2. Swiftwater Recreation Area - This recreation area will occupy a series of three benches at the south end of the Swiftwater Bridge. It will consist of day use with group and family facilities, as well as overnight accommodations. With environmental compatibility in mind, this site will be designed to present a minimal intrusion in the area.

3. Swiftwater Visitor Information Center - The information center structure will be an octagonal building approximately 58 feet in diameter. It will be sited near the north abutment of the bridge. The building will fit within an existing grove of trees but the approach road for the parking lot will require the removal of one tree. Landscaping of the area will be with indigenous species.

Information and displays will demonstrate and explain the uses made of resources in the North Umpqua drainage; water, power generation, anadromous fishery, timber, and recreation. Eventually, it is planned to man the center and aid in distributing recreation pressure by maintaining a vacancy availability status for all recreation sites from Crater Lake National Park to River Forks Park.

4. Other Recreation Areas - Two more areas have been identified on the south side of the river as having recreational potential. These are Rocky Run and South Shores. Development of these sites will engender the same impact as will Swiftwater. They will be developed if recreational demands continue to escalate. Additional intensive environmental analysis should be completed prior to proceeding with development of these areas.

5. Tioga Trail - This trail is proposed to extend along the south shore of the river to provide foot or equestrian access to the water. Its development will be segmentized, but it will eventually extend from the Idleyld vicinity to the National Forest boundary. Extension from there to the existing Mott Trail by the Forest Service and additional construction could result in a trail extending eventually to the Pacific Crest Trail, and could become an addition to the National Scenic Trails System.

This trail will be designed and located to minimize its visual intrusion and to control stream-bank damage.

6. Extensive Recreation - Development of access and sites will encourage the use of large areas for extensive recreation. This will include hiking, unimproved area camping by scouts, four-wheel drive, motorcycle use of roads and driving for pleasure. Hunting access will also be restored.

7. Renewal of Timber Harvest - Resumption of timber harvest on areas opened and re-opened to access is planned. This will result in restoration of damaged stands, cleanup of reserve settings in previously logged areas and timber cutting in currently uncut stands.

C. Time Frame Envisioned - 1971 - Swiftwater Bridge and 1/4 mile of access road completed.

1973 - Design for Swiftwater campground and recreation area.

1973 - Phase I of Swiftwater constructed including two miles of trail along the river.

1973 - Visitor Information Center constructed.

1973 - Bob Butte Road - (5 miles of mainline, 3 miles of connecting spurs).

Construction started to tie into Smith-Ford Road System.

1975 - Timber harvest operations resumed in the south area and continued in the area north of the river.

1975 - Phase II - IV of Swiftwater Site construction completed and approximately 8 miles of trail completed to the Forest Boundary.

1976 - 3 miles of reconstruction slated for extension of Bob Butte Road along existing Smith Ford Road and 1 mile of new construction.

Beyond 1980 - Additional recreation management expansion if needs require.

D. Relationship to Management Framework Plans

There is total consonance between the MFP and the subject plan with a couple of minor exceptions. In one case, the MFP estimates that a total withdrawal from intensive timber management of 40 acres of timberland will accomplish the scenic and recreational protection necessary for the development of south bank recreation sites. It is quite likely that more timberlands than that will have to be withdrawn to adequately protect the recreation values.

The other case involves a refinement of the landscape management zone which embraces a middleground as well as a background and places slightly more emphasis on the importance of the middleground as a portion of the scenic complex than the MFP did. However, management techniques have not been changed significantly.

Other portions of the North Umpqua Plan amplify actions proposed by the MFP.

III. Description of the Existing Environment

A. Existing Ecosystems - This area is typically temperate rain forest supporting a diversity of species but dominated by large woody plants, Douglas-fir and hemlock being the major ones.

The area being somewhat transitional in location between the true Douglas-fir-hemlock belt occurring farther north and the pine belt, beginning to the south, supports stands ranging from Douglas-fir-hemlock on the mesic sites to pine stands on the more xeric areas with a large range of mixtures occurring in between.

Cut-over areas support vegetation ranging from early successional forbs, grasses and brush species to maples and alders. Young conifers occur on nearly all cut-over areas and have formed a closed canopy on most of the older clearcuts.

Stand ages under natural conditions run the full gamut from young reproduction to extremely decadent old growth. Climax stands are apparently Douglas-fir-hemlock.

Wildlife - Components and Use - The North Umpqua watershed supports a large variety of wild animals from shrews and wrens to bald eagles and Roosevelt elk. Information on most of the wild animals found in the watershed does not exist. Even for the animals of primary importance in recreation use, information is minimal.

Information that is available, is for the Dixon Game Management Unit which covers almost all of the North Umpqua Watershed.

Black Tailed Deer - The black tailed deer is probably the single most important animal in the watershed in terms of population and number harvested. Population trends from 1964 to 1968 averaged 4.3 deer per mile. Since 1968 the population has declined to 2.9 deer per mile in 1970. In 1969 the Dixon unit produced 2,340 deer to the hunters bag. Some 5,460 hunters spent 33,190 hunter days hunting black tailed deer in the Dixon Management Unit. In 1965, 4,485 hunters expended 29,436 hunter days in taking 2,401 deer.

Roosevelt Elk - Population trends in the Dixon Unit averaged 2.3 elk per mile between 1964 and 1968. In 1970 the population ran 1.2 elk per mile.

In 1969, 370 hunters expended 1,730 hunter days to harvest 35 elk from the Dixon Unit. In 1965, 399 hunters harvested 42 elk in the Dixon Unit.

Upland Game - The North Umpqua watershed supports a wide variety of upland game animals.

Population and use data for these animals is not available.

For the most part, hunting pressure on these animals is low and populations in good condition.

North Umpqua Fishery - The North Umpqua River supports a variety of fish populations. None of the fish species inhabitating the river are considered rare or endangered, with the possible exception of the non-game Oregon Chub.

Primary concern of management is for those fishes of sport or commercial value.

Salmon, steelhead, and trout support the sport fishery on the North Umpqua. Salmon produced in the North Umpqua do enter the commercial off shore fishery but regulations do not allow a commercial fishery in the North Umpqua or main Umpqua.

Even though angling effort on the river has increased, fish populations at the present time are much improved. Future outlook is for continued good populations and an increased production capability in fish to the angler.

The Oregon State Game Commission has operated a counting station at Winchester Dam since 1946 providing accurate measure of anadromous fish runs.

Spring Chinook - The North Umpqua supports almost the entire run of spring chinook in the North River system.

In 1946, a total of 2,507 spring chinook passed Winchester Dam. In 1950, the spring chinook reached a low of 2,321 fish and efforts to stop the decline were initiated. Since 1950 the wild spring chinook run has shown a steady increase in numbers. (See Appendix Page 120).

In 1952 returning adults from hatchery reared smolts, for the first time, showed up at Winchester. Hatchery produced smolts contribute an increasing number of adult fish to the spring chinook run. Between 1960 and 1971 the spring chinook run in the North Umpqua averaged 9,722 fish. In 1969 the spring chinook run reached 20,777 fish which 9,358 fish were from hatchery reared smolts.

The current Oregon State Game Commission program calls for the production of 150,000 spring chinook smolts per year for the North Umpqua.

Since 1957 the spring chinook fishery has increased from 2,033 angler trips to a high of 12,986 angler trips in 1969. In this period, chinook harvest in the North Umpqua increased from 183 fish to 5,714 fish.

Fall Chinook- Fall chinook runs in the North Umpqua have historically been very low. In 1949 thirteen fall chinook passed Winchester Dam and reached a low of one fall chinook in 1954. Since 1949 the highest number of fall chinook passing Winchester Dam was 719 fish in 1967.

Interest in development of a large fall chinook run in the North Umpqua has been small because of its low contribution to the sport fishery.

Coho Salmon - The coho salmon is the second species of salmon native to the North Umpqua. Coho runs have ranged from 346 fish to 3,066 fish.

Coho do not produce a large sport fishery in the North Umpqua.

Steelhead - Two races of steelhead ascend the North Umpqua in large numbers. Winter steelhead runs between 1946 and 1970 have ranged from 4,188 fish to 12,115 fish. Since 1960 the winter steelhead run has averaged 8,248 fish. The lowest point in the winter steelhead runs occurred in 1949.

Summer steelhead runs between 1946 and 1971 have ranged from 1,672 fish to 15,853 fish. As did the winter steelhead the summer steelhead reached a low point in 1949. Since 1960 the summer steelhead run has averaged 6,253 fish.

To supplement the summer steelhead run the Oregon State Game Commission started releasing hatchery reared smolts. This program has been very successful in building the summer steelhead run. In 1969 the summer steelhead run contained 14,391 fish and has exceeded 15,000 fish in 1970 and 1971.

The Oregon State Game Commission's current program calls for the production of 150,000 smolts for the North Umpqua.

If the North Umpqua is known for the fishery it supports, the steelhead is probably the reason. Since 1957 the steelhead fishery has increased from 2,157 angler trips to 51,665 angler trips in 1970. Steelhead harvest has increased from 410 fish in 1957 to 8,905 fish in 1970 for the North Umpqua alone.

Trout - Estimates of the trout populations in the North Umpqua have not been made. Based on the angler catch rate the coastal cutthroat is the most numerous of the native trout followed by rainbow and brown trout.

Although the brown trout has been found throughout the North Umpqua its population is the greatest between Apple Creek and Soda Springs Dam.

Coastal cutthroat and rainbow have more widespread distribution throughout the system.

Trout angling on the North Umpqua from 1958 to 1964 remained stable. Angler trips ranged from 1,169 in 1959 to 18,009 in 1962. During the sample period trout anglers averaged 14,187 angler trips.

During this period the trout harvest ranged from 30,200 fish to 44,699 fish The average trout harvest during this period was 36,770 fish.

Most of the trout caught in the North Umpqua are hatchery rainbows.

Between 1958 and 1964 hatchery rainbow trout harvest ranged from 19,450 fish to 38,964 fish and averaged 29,287 fish. Hatchery trout made up 79 per cent of the trout harvest during this period. Since the adoption of an eight inch minimum size limit hatchery trout make up 90 per cent of the trout harvest.

The Oregon State Game Commission in the past has released 60 - 90,000 hatchery reared rainbow each trout season. The current program calls for 70,000 hatchery reared rainbow trout.

Rare and Endangered - The Oregon Chub, which is listed as endangered on the Oregon State list, may be present. Other species which are known or suspected to occur are the osprey, bald eagle, golden eagle, goshawk, Cooper's hawk, and northern spotted owl.

Although quite productive, most of the biomass accumulated is in woody species, hence large animals such as deer and elk are not common due to lack of browse in old growth areas. Some species of birds, the blue and ruffed grouse being the game species, which are dependent on old growth stands occur. Revegetated clearcuts provide browse and surrounding timber gives shelter so that the larger ungulates are more common in the logged areas. Vegetation in clearcuts to the south of the river is rapidly diminishing in browse value to deer and elk due to its increasing height and crown closure.

B. Existing Water Quality - Current water quality is generally excellent with periods of degraded quality coinciding with high precipitation or rapid snow melt periods. Special water quality standards apply under state statutes and regulations.

C. Existing Air Quality - Air quality is generally good with only limited urbanization and one small mill within the immediate airshed. Agricultural burning during some periods of time causes visual restrictions.

D. Existing Esthetic Situation - The esthetic situation in the North Umpqua Canyon can be characterized as generally high value. Water in the river exhibits low turbidities and pleasant coloration throughout the summer. Heavy fall rains precipitate higher turbidities which generally are of short duration. High water periods throughout the winter result in turbid water with clearing in between periods of heavy precipitation. Muddy water will occasionally issue from individual drainages only, but is usually spawned system wide under severe weather conditions.

Residential and commercial development in the western portion of the canyon presents a largely pastoral character and, with few exceptions, is not objectionable.

Development is fairly continuous to Rock Creek. From Rock Creek east there are only scattered enclaves of population on the north bank. Parks and waysides are tastefully developed and well screened. Most of the private development is esthetically compatible with the few exceptions not radically altering the general appearance of the drive.

The North Umpqua Highway is the most blatant intrusion on the river from an esthetic and environmental viewpoint. Built at a water grade throughout most of its length, its right-of-way clearing has denuded the banks to the waterline in many places, particularly where rip-rap extends into the stream. Random camping on turn-outs has created a sanitation and litter problem in some places. In spite of its shortcomings, many beautiful vistas are available along the highway and vegetation forms an effective nearby screen along much its length.

Vistas on the western end of the area include grassland clearings made for pasture, and clearcuts on Scott Mtn. Progressing east, fields and mixed hardwoods blend into logged over country in the uplands. In the Idleyld vicinity young stands predominate with some clearcuts visible in the mid-slope area.

Habitation ends on the south side of the river in the vicinity of Idleyld Park. A little in excess of a mile east of the last home the Swiftwater Bridge spans the river near Rock Creek. Located near the North Umpqua Highway's Rock Creek Bridge in an area of commercial and residential development, the bridge, which was designed, located and constructed to be compatible with the environment, provides little intrusion in the natural scene.

Old growth forest predominates in the vicinity of the bridge with high-grade logging appearing on the north side of the highway and further east on the south side as well.

Easterly from the Cable Crossing area the south side is in virgin condition until the cutover area on Bob Butte comes into view. The north side is similarly undisturbed, for the most part until the eastern portion of Section 17 is reached.

From this point through the Hogback in Section 16, extensive cutting appears. Continuing on the north side, a few rock pits, natural meadows and a trailer park appear in the largely unbroken timber. Near the end of the planning area, a slide which is periodically mobile bares fresh soil next to the road.

On the south side, the Bob Creek drainage shows extensive logging interspersed with standing timber and a high voltage transmission corridor. Near the river, high graded areas blend into uncut timber at the site of the Smith Ford Bridge. Here, two piers and two abutments remain of the old bridge. The road leading to the bridge on the south bank is not visible in the summer and scarcely visible for a short distance in the winter when leaf-fall from hardwoods has occurred.

Foreground areas on the south bank are uncut east of Smith Ford with the exception of the blowdown logging in Section 24.

Middleground areas, while they appear sparingly due to terrain, are heavily logged over. Grass, brush and tree reproduction has covered most of the cutover area.

E. Human Components - The Glide area is populated by ranchers, loggers, mill workers, small businessmen and an increasing number of retirees. There is one small mill in the area.

Roseburg is the nearest commercial center to the planning area and is the Douglas County seat. It is about 18 miles from Glide. The Roseburg area is overwhelmingly dependent on timber economically, with agriculture and recreation being a minor second and third, respectively. Woodland educational and scientific values that are utilized in the Glide area are the School Forestry Tour located on the Glide Sanitary Disposal Site; the Society of American Foresters, Forestry tour up the Little River area and Forest Service interpretive sites such as Colliding Rivers. The Glide Wildflower Show is an extremely popular annual event which draws people and flowers from all over Western Oregon.

No unique or rare ecosystems occur within the planning area, but interpretive opportunities exist.

Archeological values exist at the Susan Creek Indian Mounds. Other evidence of Indian occupation exists with the known sites being on private lands.

Geological opportunities are such formations as the "Narrows", petrified or carbonized wood, coal seams, fossils, and gemstones. Old and modern landslides give evidence of geologic erosion.

Economic and cultural patterns remain much the same today as they have for the past several decades.

There is some trend toward subdivision to lots and small acreage tracts largely due to demand by retired people, but some is attributable to commuters.

Subdivision within the canyon itself is minimal as most of the land near the river is publicly owned, the remaining private ground is largely held by large landowners for such purposes as timber production.

Transportation to the area is by private vehicle via the North Umpqua Highway which is a county road, BLM and private logging roads. No regularly scheduled public transportation exists.

There are no railroads or airports nearer than Wilbur or Roseburg.

Utilities available are telephone (Buried cable up the North Umpqua Highway), 12 kv distribution line up the river and bottled gas.

Water is available in the Glide area from a treatment plant which draws from the North Umpqua River.

In the canyon, water supplies are drawn from private wells, feeder streams and the river itself. Sewage is disposed of by private septic systems. Thin soils, not adaptable to drainfield disposal have created sanitation problems and a consequent brake on development in the Glide area. A sewer district was formed to deal with the problem and its engineering consultant has proposed a plan which would serve the Glide area and extend a line up to Rock Creek. The future of this district is in doubt, however, as a dissolution election was recently held.

Wild and Scenic Rivers

Federal Act - Of the three categories established by the Federal Wild and Scenic Rivers Act, the North Umpqua will qualify easily for the "Recreational River" classification but only marginally or not at all for the "Scenic River" category. It will not qualify at all for "Wild Rivers". "Scenic River" classification requires shorelines or watersheds largely primitive and accessible in places by roads while "Recreational Rivers" allows ready access by roads or railroad and some development along shorelines.

No administrative action or legislative attention has been undertaken to include the North Umpqua under the Federal Act.

State Scenic Waterways - A move has been initiated to request the State Highway Commission to study the feasibility of including the North Umpqua from Soda Springs Dam to slackwater at Winchester under the State Scenic Waterways Act (ORS 390.805 to 390.925). No administrative action has been undertaken as yet. Some portions of the river may qualify under the Act.

IV. Analysis of the Proposed Action

In this section various alternatives which have been considered are listed and their effects briefly covered. The plan is structured to provide policy and operating guidelines in a framework which can be altered to meet changing considerations as they arise in the future. The plan contains three action projects; Swiftwater Recreation Site, the Bob Butte Road, and the Visitor Information Center. Analysis of the environmental effects of these three is readily done as their courses are moderately well charted.

As planning progresses from the current level into more detailed activity plans, it is evident that new alternatives will arise, be considered, and the options will be chosen to return the greatest continuing benefits to society. The more detailed the planning becomes, the greater are the number of alternatives to be studied. It is not within the scope of this analysis to identify or to study all conceivable options which may arise beyond the current plan but it is within its responsibility to identify the options which were considered in developing the present document. Further planning will entail further environmental analysis.

Broken into broad categories, there were three options at the plan's initiation:

1. Stop at the present situation and maintain the status quo by building no more roads, harvesting no more timber, planting no more trees, developing no more recreation sites or engaging in any action which would noticeably alter the current scene.

2. Remain in the present development stance or rate of progress. Presently, management is low key and primarily a reactive response to individual emergencies or critical needs. Roads are built to reach particular objectives - a damaged patch of timber, a summer home, a rock quarry, or any of innumerable other circumstances.

Timber management is responsive to the needs of somewhat accessible stands which have suffered such catastrophes as landslides, heavy wind damage, severe disease onslaughts and similar occurrences, but has neglected inaccessible stands and those which have received less than total damage.

Recreation has been dealt with by allowing local and state agencies to develop sites where the needs were greatest by using Special Land Use Permits and Recreation and Public Purposes Leases. In some cases trash containers were the limited response to a major problem.

Road maintenance is unfeasible in many areas and impossible in others due to access problems. This has resulted in occasional water quality problems.

Management under this option has been largely intuitive, responsive and not totally unsatisfactory. It, if continued, would probably result in a satisfactory though belated development of the area's resources based on needs. However, a loss of efficiency and reduction in benefits is likely due to lack of overall coordination of efforts and direction.

3. An intensification of management consistent with resource needs is the third alternative and the one chosen. It is evident that a prodigious number of alternatives are then available to planners within this major option. The general categories are covered in the following narrative along with their possible benefits and shortcomings. The three specific action projects which are proposed in the plan are analyzed in this section also.

A. Comparison of Alternatives and their Environmental Effects

Alternative 1

Maintain the Status Quo

1. Timber, fish and recreational resources would be largely lost as a beneficial use to man.

2. No new disturbed land would appear.

3. Some pollution of new land and water areas will not occur but localized pollution will intensify.

4. Slash smoke wouldn't be produced from Government land within the plan area.

5. Development will occur on intermingled private lands regardless of Government actions.

6. People impacts on the currently available areas will become more evident through damage to stream banks, vegetation and some esthetics.

7. Some new sources of noise won't appear.

8. There will be no recreation use on some areas.

9. Additional people pressure would not be encouraged.

10. Environmental deterioration will continue due to overuse.

11. The potential for major forest fires to severely damage the area periodically due to impeded access for control purposes exists.

12. Where access currently doesn't exist, no adverse change in esthetic conditions could occur due to human activity except for wildfire.

13. Large areas of virgin timber will remain uncut.

14. No new unnatural disruption of ecosystems would result.

15. Plant and animal communities dependent upon old growth timber stands will flourish relatively undisturbed.

16. Some acreage now in roads would become productive due to revegetation, and no additional land would be removed from production.

17. Randomized uncontrolled recreational use of areas undeveloped for overnight camping, along logging roads will continue to cause fire risk, litter, and sanitation problems.

18. Turn-aways at existing recreation sites will continue to grow.

19. Two very promising recreation areas will not be developed with a consequent loss to society of the values and opportunities existing there. Lack of access will forego extensive recreation opportunities.

20. Educational opportunities through the interpretive program will be lost.

21. Scenic values will continue to deteriorate due to highly visible concentrations of people as well as to accelerated break-up of very decadent stands. In another sense, esthetic values would remain constant on the south bank of the river because evidence of man would be very sparing.

22. Conflict between logging and recreation uses would not occur.

23. Increase in recreational impacts on the south bank would be slow except at Swiftwater.

24. No access would exist for large areas of the south bank.

25. Fishing pressure will continue to grow steadily at the popular accessible reaches and holes. Under-utilization of trout and anadromous fish will continue until demand reaches the river's productivity level and hatchery trout planting level. This will result in high quality fishing for a few with a comsequent loss in utility value to others.

26. Game habitat will continue deteriorating due to height growth of browse and lack of management with a concomitant reduction in animal numbers.

27. Game would not be molested any more than at present.

28. a) An additional 75 miles of road estimated to be necessary to complete development won't be built.*
b) Additional right-of-way clearing of 600 acres will not occur (7.5 acres/mile). c) Road surface equal to 400 additional acres will not be constructed (5 ac/mile).

29. Timber management will continue to suffer and the production from large tracts of presently valuable but highly decadent timber would be lost to the economy if it's not salvaged.

30. No additional land would be removed from production.

31. Insect and disease damage would be difficult to impossible to control. Widespread forest destruction could result.

32. Events occurring in the watershed above the area in question could adversely affect water quality in the area.

33. Water quality problems will continue due to inaccessibility of certain roads to maintenance crews.

* Based on 5 miles of road per section on Government land without regard for other management considerations.

Alternative 2

Maintain the Present Level of Management

This option would continue the past and current rate of development into the future indefinitely. The end result will forseeably be a total development of the area by a piecemeal process. Activities will take place primarily in response to emergencies and thus planning time for other considerations will be minimal. As a result esthetic quality may suffer, water quality may deteriorate periodically, soil is more likely to be damaged, recreation values lost for a long time period and timber will not be managed adequately.

1. Some timber, fish, and recreational resources would be lost as a beneficial use to man.

2. Expenditures for this area would occur at a lessened rate.

3. Some pollution of new land and water areas will not occur but localized pollution will intensify.

4. Less slash smoke would be produced from Government land within the plan area.

5. Development will occur on intermingled private lands regardless of Government actions.

6. Disturbed or damaged soils will possibly be more prevalent due to planning which occurs in emergency situations and through lack of management access.

7. Environmental and esthetic values will continue to deteriorate due to inefficient management on portions of the area.

8. Esthetic conditions will improve slowly in some instances as access for management improves.

9. Some pollution of land and water will intensify due to local uncontrolled overloads.

10. The standing inventory of old growth timber will decrease.

11. Species diversity will be enhanced by creation of more varied environmental conditions.

12. Some impediment to plant and animal succession will occur as many old growth areas are converted to management.

13. People impacts on the currently available areas will become more evident through damage to stream banks, vegetation and some esthetics.

14. Some new sources of noise will appear more rapidly than in Alternative 1.

15. Growth in litter and sanitation problems will continue.

16. Recreational overuse will occur on many developed and undeveloped sites.

17. Recreational use will be inhibited on suitable but inaccessible areas.

18. Recreation use may outstrip facility development due to inadequate lead time.

19. Less attractive recreation sites may be built because of restricted access to more desirable sites.

20. Recreation values may not be adequately safeguarded due to lack of comprehensive long term planning.

21. The potential for major forest fires to severely damage the area periodically due to impeded access for control purposes exists.

22. Changes in esthetic conditions due to human activity will occur slowly as access is developed.

23. Large areas of virgin timber will remain uncut while access is slowly developed.

24. Disruptions of natural ecosystems will occur as management progresses.

25. Randomized uncontrolled recreational use of areas undeveloped for overnight camping along roads will continue to cause fire risk, litter and sanitation problems.

26. Turn-aways at existing recreation sites will continue to grow.

27. Two very promising recreation areas will not be developed with a consequent loss to society of the values and opportunities existing there. Lack of acce

28. Educational opportunities through the interpretive program may be lost.

29. Scenic values will continue to deteriorate due to highly visible concentrations of people as well as to accelerated break-up of very decadent stands.

30. Conflict between logging and recreation uses may intensify due to dispersed camping and other uses.

31. Increase in recreational impacts on the south bank would be slow except at Swiftwater.

32. Fishing pressure will continue to grow steadily, concentrated at the popular accessible reaches and holes. Under utilization of trout and anadromous fish will continue on the rest of the river until the demand reaches its natural productivity level combined with the hatchery planting level. This will result in continued high quality fishing for a few with consequent loss in utility value to others.

33. Game habitat will continue deteriorating due to height growth of browse and lack of management with a concomitant reduction in animal numbers. The rate of deterioration will not be as rapid as in Alternative 1 due to some creation of new habitat.

34. Game would be molested somewhat as new roads were built and public access increases.

35. a) Seventy five miles of road estimated to be necessary to complete development will be built. b) Additional right-of-way clearing of 600 acres will occur. c) Road surfacing will cover an additional 400 acres (5 ac/mile).

36. Timber management will continue to suffer and the production from large tracts of presently valuable but highly decadent timber would be lost to the economy if it's not salvaged.

37. Insect and disease damage would be difficult to impossible to control. Widespread forest destruction could result.

38. Events occurring in the watershed above the area in question could adversely affect water quality in the area.

39. Water quality problems will continue due to inaccessibility of certain roads to maintenance crews.

40. Fire protection will improve at a slow rate.

Alternative 3

An Intensification of Management Effort Consistent with Human and Natural Resource Needs

Management intensity in this context involves a classification of lands considering their primary resource values and according them suitable management. This would involve activity levels ranging from next to nothing in areas where esthetic values are paramount to an intensified forest management regime where timber is the primary consideration.

Alternatives within this action mainly involve the type and location of access to the south side of the river since access from the north side of the highway is readily obtained now.

To increase the management level, access must be improved and the following analysis identifies these options.

OPTIONS	ELABORATION
I. Conventional Timber Management and Harvest Access	I. This is the current method generally used to develop lands for timber management considerations only. Conventional equipment necessitates

the construction of roads within an average horizontal distance of 1000' from any stand of timber which is to be managed. This results in an average spacing of 2000' for roads or about 5 miles of road per section or square mile.

Topography and the capabilities of contemporary yarding equipment determine the skeletal structure of the road net, thus, the choice is somewhat restricted given the decision to manage an area. Options under this alternative then reduce to a choice of where to exit the system and join the external public transportation system.

A. Land Access

A. There are two land access routes to the area.

Common Factors

a. No new bridge would be necessary
b. Traffic would not enter the area until it reached the Lone Rock Road intersection in one case or the Little River Road intersection in the other, missing Glide in the latter.

c. Fire access would be impeded by a minimum of 20 - 25 minutes via Thunder Mtn.

d. Would not eliminate need for mainline road within area south of the river.

I. Lone Rock Road System

a. High costs would accrue to the BLM and Douglas County to bring this route up to standards for heavy hauling particularly if it were made into two lanes for recreation use also.

b. Recreation use would be hampered due to poorer access and the bad intersection for turning right at the Lone Rock Bridge.

c. Heavy traffic would be brought to what is now a fairly dense residential area.

2. Thunder Mtn Road System

a. An increase in tributary volume would finance more road improvement for this segment and a better road may result.

b. Higher hauling costs due to adverse haul.

c. Little recreational use would occur

d. Potential for road closure due to snow or slides is greater due to the increased length and elevation reached by this route.

e. Much difficult reconstruction in steep country would be necessary to get necessary grades and alignment, resulting in high construction costs and soil disturbance.

B. Bridge Access

Several bridge crossing alternatives were singled out initially, for study.

1. Wright Creek

This alternative would connect the road system into an existing U. S. Forest Service Road net which crosses the river at the Wright Creek Bridge approximately 4 miles east of the planning area.

a. No new bridge required.

b. Excessive amount of backhaul.

c. Extensive road construction in steep country required to effect a link-up between Wright Creek System and the existing lower elevation system in planning area.

d. Extremely rough terrain would be crossed if lower level extension were to be constructed to link up the existing systems.

e. The bridge serving this system is very prone to flood damage.

f. Fire access would continue to be poor.

g. Heavier traffic would utilize a greater length of the North Umpqua Highway.

h. Recreation use would be minimal.

i. Would not eliminate the need for a mainline road system within the area south of the river.

2. Smith Ford

A bridge deck washed out in 1964 at this location but its piers and one abutment remain standing.

a. An old bridge would be reconstructed.

b. Structure here cannot be economically made floodproof.

c. Some backhaul would be involved.

3. Swiftwater Bridge

Swiftwater Bridge (the option chosen) connecting into the system via Bob Butte Road.

A road will have to be built on this approximate location to manage the lower lands along the river, regardless of entry to the area. The proposal is to make this road available and safe for recreational use as well as commercial hauling. Specific road design information is available for review at the Roseburg District Office.

a. Recreation values and opportunities will be enhanced.

b. Fire access from the DFPA Station at Rock Creek or Roseburg will be the most rapid of any alternative.

c. The bulk of the timber on the south side is most economically hauled west over this route.

d. This route requires the least heavy mainline road construction to develop access.

e. New bridge needed (now built).

f. Small portions of this road may be visible for a few years from the North Umpqua Highway.

g. Additional noise and smoke will be introduced to the river canyon.

4. T. 26 S., R. 2 W., Section 7

This alternative was abandoned when engineering tests showed that the north abutment would be located in an active slide area.

5. Idleyld

Two locations were considered here. One at the "Narrows", would have infringed upon a very popular fishing area and been visually unacceptable; the other, located further upstream shared the visual problem and would have required a highly visible approach road on the left bank.

II. Utilization of New Technology

A. Aerial Yarding Techniques

1. Skyline System — This is an old system, currently regaining some interest and proliferating into many variations. It is capable of yarding logs totally free of the ground for distances up to 4000' with some designs. Other systems drag one end of the logs on the ground. Some machines designed for thinning operate over distances up to 800'. Each of the systems has its own set of advantages and disadvantages.

   a. Minimal soil disturbance with some systems on suitable terrain.

   b. Lower density road system required.

   c. This type of system would still require a mainline road system in the area south of the river.

   d. Some partial cut capability.

   e. Can yard over standing timber where deflection angle is high.

   f. Suitable terrain to obtain adequate deflection is limited.

   g. Some systems drag one end of the log on the ground creating heavy soil and vegetation damage.

   h. Initial cost of equipment is relatively high.

   i. High volumes of timber per acre are generally necessary to make skylines pay.

   j. Some systems require large clearcut areas to be economic with potential visual problems.

   k. The economic viability of the larger systems has not been satisfactorily demonstrated yet.

2. Balloon

This is a modern development utilizing a balloon to create lift or upward deflection of skyline cables, in effect, an inverted skyline.

a. Fewer roads required.

b. Little or no soil disturbance.

c. Yarding over stream buffer strips is possible.

d. Advance reproduction is protected.

e. Relatively high cost of equipment initially and somewhat higher yarding and loading cost.

NOTE: Balloon setup costs approximately $400,000 and yarding and loading costs run as low as $20/M but average $30-35/M.

f. Yarding is currently limited to downhill which requires low level roads which are potentially damaging to streams. This type of logging would still require construction of a road on approximately the location of the Bob Butte Road.

g. Brush control is a problem (where reforestation is difficult due to brush competition, this system creates far greater problems than conventional high-lead due to lack of scarification).

h. This system has as yet extremely limited capability for partial cut yarding.

i. Moderately high volume per acre is needed for balloon use to be economic.

j. Slash disposal on the landing and in the unit is a major problem in later reforestation efforts.

k. Large landings are needed.

l. Operation and storage of the balloon in high winds is difficult.

m. This system would still require a lower level mainline road system in the area south of the river.

3. Helicopter

The increasing availability of large helicopters capable of lifting the great weights necessary in logging has sparked the development of several helicopter logging enterprises.

a. Fewer midslope roads would be necessary thus offsetting partially, the increased yarding costs.

b. Soil disturbance is minimized.

c. Partial cutting is possible on steep ground.

d. Immediate availability of dead or dying timber from existing roads.

e. Irregular clearcut boundaries may be easily created.

f. Remaining trees are protected.

g. Very high cost for machine initially and subsequent yarding. (copters cost in excess of $1 million and yarding and loading costs on some sales ranged from $34.39 to $72.41 per thousand bd. ft. ($60.00/MBF is average) versus $10.00 to $15.00 per thousand with conventional means).

g. Critical planning and coordination is necessary to make helicopter yarding economic.

i. Yarding should be downhill which necessitates low-level roads which have the potential for stream damage.

j. Machines are not generally available.

k. Poor utilization of marginal or low value material.

l. This type of logging creates slash disposal problems.

m. Brush control problems created through lack of ground cover disturbance.

	n. Extremely large landings are needed.
4. Combination of the preceding aerial methods	Varying combinations of aerial systems will make use of each where it is most uniquely suited, bearing in mind the advantages and shortcomings of each.
III. Combination of Conventional and aerial systems	This is the most likely result of further planning. Not all landforms or situations are susceptible to aerial yarding, just as they are not all suitable for logging by conventional methods. Intensive management and the necessity of maintaining ready access to operate under a landscape management system (which requires in many cases, frequent revisiting to maintain a continuous canopy and the use of small cutting units), tends to increase the density of a road net. The use of aerial yarding systems and the zoning of areas as too visually critical for cutting tends to decrease the road density. It is difficult to predict, at this point, what the ultimate mix of yarding systems will be and thus accurately forecast how dense a road system will result. What can be said is that greater use of aerial systems will tend to decrease density but not eliminate roads entirely. Spurs will comprise the majority of the roads being replaced by aerial yarding systems.

General Comments:

The preceding section covers various means of access and relates primarily to timber management. The chief differences between the routes revolve around relative costs for construction, hauling and recreation accessibility.

Topography and logging methods largely dictate the location and density of the road system necessary to manage this area on a multiple-use basis. There is little latitude involved, then in modifying the basic system and the question boils down to this: In which direction is the tributary timber to flow and at what point will this flow intersect the external public transportation net, and also, will safe public recreation access be accommodated or facilitated by the choice taken?

The following section analyzes the evironmental effect of the specific projects proposed in the plan.

V. SPECIFIC PROJECTS

A. Bob Butte Road

This is a two lane paved road designed to serve heavy recreational use along with commercial traffic. It is eight miles long and varies in width from 20 to 24 feet. The first segment will be 5 miles with 3 miles of connecting spurs.

A road will have to be built on this approximate location to manage the lower lands along the river, regardless of the choice of entry point to the area. The proposal is to make this road available and safe for recreational use as well as commercial hauling. Specific road design information is available for review at the Roseburg District Office.

a. Recreation values and opportunities will be enhanced.

b. Some visual deterioration may occur for those who prefer seeing no one else on the south bank.

c. Fire access from the DFPA Station at Rock Creek or Roseburg will be the most rapid of any alternative.

d. The bulk of the timber on the south side is most economically hauled west over this route.

e. This route requires the least heavy mainline road construction to develop access.

f. New bridge needed (now built).

g. Small portions of this road may be visible for a few years from the North Umpqua Highway.

h. Additional noise and smoke will be introduced to the river canyon.

i. Fifty acres of land will be devegetated for road construction. The pavement portion and shoulders will remain bare while cuts and fills plus the 5 foot wide area adjacent to the top of cuts and the toes of fills will be revegetated with grass and brush.

j. Some sediment will be produced for a couple years from P-Station 206+18 to 207+50 and small slumps from P-212+12 to 213+50.

B. Swiftwater Recreation Site

This is a large sophisticated recreation site incorporating facilities for both overnight and day use. It is to be constructed near the southern end of the Swiftwater Bridge. Its design and construction will be with environmental compatibility foremost in mind.

a. Recreation use will be introduced into a new area.

b. More people will be in the watershed with greater pressure placed on its resources.

c. Development of this site will help to control randomized camping which continues to grow along the North Umpqua Highway and logging roads.

d. Development of this site will help to control litter and sanitation prolems will continue to grow concurrently with No. c above.

e. Fishing opportunities will be provided to greater numbers of people in the vicinity of the site.

f. Personal health and social benefits will accrue by virtue of people being exposed to leisure in a pleasant natural environment.

g. Artificial objects will be placed in a natural setting.

h. Visual degradation may occur for people who prefer not to see other people, vehicles, or structures.

i. Smoke from campfires will occur.

j. Some noise originating on-site will affect some persons.

k. Disturbance to some animals will occur.

l. Vegetation will be affected in high-use portions of the site.

m. Soil structure and infiltration rates will be affected in some areas by pavement and high levels of foot traffic.

n. Timber production will be vastly reduced on 55 acres of the site.

o. Trails will provide people access, hence, pressure on the fishery for a relatively short distance up and downstream from the site.

p. Horse traffic will be introduced via a river bank trail. This use should not exceed an average of 4 to 5 riders per day during the summer for the next 5 years.

q. Pressure will be lightened on other recreation sites in the area.

r. Additional vehicle emissions will occur in a concentrated area.

C. Visitor Information Center

This structure is a cooperative project located near the northeast corner of the bridge. It is proposed to house exhibits and information depicting the human use of natural resources in the Canyon. Eventual manning of the Center is proposed and it can then function as a clearing house for recreation site availability over an area ranging from Crater Lake National Park to the Park at River Forks. By this means, recreation management can be further implemented.

a. This will provide educational and interpretive opportunities.

b. Recreation management will be facilitated.

c. A pleasant natural appearing building will provide necessary sanitary facilities at the site.

d. Landscaping, natural in appearance, will occupy that portion of the site which was severely damaged in the 1964 flood.

e. Removal of one tree will be necessary to build the approach road to the parking area.

f. Water and electric power will be consumed at the structure and sewage generated there, which may have been disposed of elsewhere.

B. Unknown or Partially Understood Impacts

Douglas-fir response to management under a continuous canopy, particularly in old-growth stands, is only poorly known for most regions and sites.

Excessive breakup of residual timber due to logging and wind damage constitutes a major problem. There is also the almost certain possibility of a change in species composition with hemlock and/or hardwoods dominating some sites.

It is also unknown what the effect of not implementing the plan would be on the social and economic structure of the area, and nation. The effect would be subtle but nonetheless real.

The extent of soil movement which will be precipitated by activity in the watershed is not totally known. Although some transient increase in erosion can be expected over the current rate its potential for damage to fish habitat is very low.

The extent of retention by the soil of sewage effluent materials in the campgrounds is not totally understood, although good capacity exists for many years and alternative methods of disposal are feasible.

Species diversity particularly the smaller and lower plants will be affected by timber management, but the extent is not known. Some rural homesite subdivision on private lands may occur as a result of developing access. The extent of this is not known.

C. Unmitigated Impacts of the Proposed Action

1. Terrestrial Ecosystems as Affected by Recreation, Timber and Road Development

Plants

The remaining undeveloped areas will lose their natural untampered with ecological relationships and character. In the landscape management zones in essentially natural ecological progression and character will remain. Species diversity will be affected - enhanced by creating pioneering sites and retarded in cases where undisturbed conditions are needed.

The plant ecosystem will be shifted somewhat back from the climax end of the scale. The variety of plants and animals will increase due to the increase in habitat types.

Stability of old plant communities will be affected by recreationists on concentrated use area. Reproduction of some species will be retarded and thrift of older individuals could be affected.

Animals

Animals needing solitude, such as elk, may suffer but increased seed, browse and leafy production of revegetated areas will allow the production of greater animal biomass composed of big game ungulates, rodents and birds. Predators of these species will concomitantly increase. Some local animal migration occurs. These patterns will be partially disrupted in some cases and big game will be subjected to increased illegal hunting. No largescale changes in animal movement will occur.

2. Water Quality and Quantity as Affected by Recreation, Timber and Road Development.

Almost any activity by man on the ground in a watershed will affect water quality. Some soil compaction will occur resulting in decreased infiltration. Road surfacing inhibits or ends infiltration and hastens run-off. Roads are also the primary source of soil movement in timber management. Some nutrient loss to water will occur due to soil disturbance and slash burning. Earth movement will be precipitated by road construction and timber harvesting and some potential does exist for stream channel damage resulting from debris from logging operations near streams.

Some sediment will appear in small streams tributary to the North Umpqua due the preceding activities but there will be no additional impact systemwide because these activities are occurrring at the same level elsewhere in the same drainage already.

No degradation of summer water quality is expected except for temporary local effects due to culvert installation and similar activity.

The small volume of discharge of tributaries having summer flows has no measurable influence on the North Umpqua River. Those streams supporting fish populations are to be protected to prevent changes in stream temperatures.

Clearcut logging has been found to result in increases in streamflow. Most of the increase is attributable to lack of vegetative interception and to vastly reduced evapotranspiration. This results in higher soil moistures at the end of the summer precipitation deficit season. Although 80% of the increase comes in the October through March period, streamflow increases are detectable during all months. Flow augmentation is particularly beneficial during the summer when small increases constitute a large percentage rise. Detectable increase may last as long as 30 years by some indications but other evidence indicates that rapid revegetation may reduce the increase over a very short time period.

Flood peaks have not been perceptively affected by clearcutting because flood producing precipitation occurs during the mid-winter when ground water recharge has been completed for all soils. The greatest increase in streamflow vis-a-vis clearcuts and green timber occurs during the October through December period when precipitation is refilling the soil reservoir depleted by vegetation in uncut stands and contributing inflow to stream channels from moister soils in cutover areas.

Annual water yield was increased 18" on a clearcut watershed receiving approximately 90" annual precipitation on the H. J. Andrews Experimental Forest, (Rothacher, 1970). Yield increases were found to be directly proportional to the percent of the area cleared, thus partial cutting or patch cutting on a sustained yield basis in larger watersheds produces flow increases so small as to fall within the margin of error attributable to other causes and sources.

The highest average, annual precipitation zone within the planning area is approximately 60", a figure which is only 67% of the value occurring in the test watershed. The effect in this area, therefore, can be reasonably expected to be proportionately less.

3. Existing Air Quality as Affected by Recreation, Timber and Road Development

No overall significant effect is foreseen for air quality. Local effects will be diesel smoke from construction and logging, dust on some roads and campfire smoke. Slash burning smoke is a regional entity and no increase can be attributable to the plan proposal.

A small increase in vehicle exhaust emissions may occur due to a slight increase in traffic occasioned by the presence of attractive recreation facilities. The Canyon is well ventilated generally by gradient winds so this should not constitute a problem.

4. Existing Esthetic Conditions as Affected by Recreation, Timber and Road Development

"Beauty is in the eye of the beholder" - that overworked but admirably applicable phrase sums up the difficulty of assessing visual impacts. Recreation brings people into concentrated areas where their very presence constitutes a visual infraction to some. Lines of brightly painted shiny aluminum campers and trailers do constitute a visual intrusion. The slight degradation in visual quality as viewed by a few may be more than offset by the greater good attained through large numbers of people being exposed to the natural scene, however.

Timber harvest gradually will change the visual character of the surrounding background from old growth to young trees. Much of the visible portions of the south side has already been changed in this manner. Roads and landings may be visible in areas containing low vegetation until regeneration again hides them from view.

5. Fishery and Wildlife Resources as Affected by Public Access to the South Side of the North Umpqua from Rock Creek to the Umpqua National Forest Boundary.

The results of this development could increase the intensity of angler effort on the North Umpqua.

Harvest of summer steelhead and trout will probably increase as a result of more anglers being able to fish during the best catch periods, however present populations can support an increased harvest as long as current hatchery production is maintained.

Increased number of anglers and effort is more a function of fish populations than access and facilities. When fish availability drops, so does angler interest.

No change in habitat is expected.

No change in salmon harvest is expected under current regulations as the river and tributaries are closed to salmon angling above the established deadline at Rock Creek, but spring chinook runs can support a higher harvest in the North Umpqua.

Quality of angling will temporarily be improved by better angler distribution until such time as both sides of the river reach capacity.

Access to the south side will allow hunters to reach additional hunting areas, however the total number of hunters is not expected to increase by a large amount.

6. The Effect of Scenic Rivers Classification on the Plan's Proposals

Classification under the Federal Act (P.L. 90-542) would likely be as a scenic or recreational river as the North Umpqua is not primitive enough for wild river classification.

Activities proposed under this plan do not conflict with the requirements of the foregoing categories.

The State Act (ORS 390.805 - 390.925) applies to private land which falls within a foreground zone of 1/4 mile from the river and is consequently to be managed for its scenic quality. Permissible uses are the harvest of forest crops, the construction of buildings or other structures not incompatible with the scenic beauty of the river and roads necessary to serve permissible uses. The plan proposes to keep all roads as unobtrusive as possible and all recreation developments adequately concealed from the river viewpoint. No pollution of waters is allowed by either Federal or State Statutes.

There is no apparent conflict between this Act and the proposals enumerated by the plan and it appears that actions taken under this plan on BLM lands would complement State policy on private lands.

D. Mitigating Measures That Can Be Taken or Environmental Enhancements

1. Roads

Proper location, design, use of minimum standards, and surfacing where necessary will ameliorate the impact of roads.

Other methods to be used are steepening cut slopes, benching cuts and fills, balancing earthwork, limiting construction to dry seasons and outside of anadromous fish spawning and incubation periods. Adequate sizing and spacing of culverts, end-hauling excess material and mulching and seeding disturbed soil will hasten soil stabilization and minimize erosion. The use of roads under extremely wet conditions will be restricted and roads will be monitored for purposes of preventive maintenance as much as possible during potentially damaging weather conditions. Hours of hauling use will be restricted during the recreation season to control noise in the campground created by logging traffic on the Bob Butte Road.

See "General Design and Construction Criteria" and "Wildlife and Fisheries Management" in the plan for detailed coverage of mitigating management practices.

2. Recreation

Site design, location, construction methods, and landscaping chosen will blend site developments into the natural scene. Developed recreation facilities will not intrude on river esthetics as a result. Similarly, trail and road design will be carefully located. Landscaping will be done with indigenous species. Sewage systems will be designed to exceed special water quality standards for the North Umpqua.

An interpretive program and conservation messages will help to orient the people to wise and careful use of the resource.

3. Timber

Selection and shelterwood will be chosen as harvest methods whenever possible in the foreground and middle ground. Buffer strips will be left on important water sources and spawning streams. Heavy equipment will not be permitted to indiscriminately operate in any streams. Slash will be kept out of or cleaned out of streams.

Smoke management programs administered by the State will be followed carefully.

Sites which cannot be harvested without excessive damage by current systems will not be logged until adequate equipment is available.

Scenic zones have been established to preserve the esthetic integrity of the canyon.

Reforestation, fertilization and thinning will produce maximum green-up and wood production on harvested lands.

4. Enhancements

Enhancement of the human environment includes the provision of expanded recreational opportunities, jobs, and wood for the nation. Hunting and fishing opportunities are being made available to more people.

Educational opportunities are to be made available through the Visitor Information Center interpretive program, the demonstration forest and nature trails.

Scenic values will also improve for many people as decadent timber stands gradually turn to thrifty young stands. Enough deteriorated old trees will remain, however, to provide animal habitat and visual interest.

E. Adverse Impacts That Cannot Be Avoided

The intrusion of man and his accoutrements into the natural scene is the major impact on the remaining undeveloped areas. With this is the destruction of the solitude in some areas which comes from the absence of man.

Roads will cover up to 400 additional acres of surface, reducing infiltration to zero on these areas. Generally about 6 - 7% of the area is disturbed for roads and landings when timber development occurs in mountainous Western Oregon. Total disturbed acreage on this basis would equal 960 acres. Approximately 360 acres of BLM land has already been so treated.

Road building is the chief source of sediment generated by logging practices. It is felt that roads per se do not occasion much soil movement, but they do create that small additional element which releases highly unstable material held in precarious balance on naturally mobile slopes. They, thus, serve, in some cases, to accelerate natural erosional processes.

Landslides are the greatest source of mass soil movements and their greatest incidence occurs along roads. Swanston (1971) attributes these failures to "side casting and addition of road fill, inadequate or poorly designed road drainages and oversteepened backslopes. Sidecasting and the addition of road fills may overload the surface below the road cut and obstruct upslope soil drainage creating saturated conditions in and above the road fill during periods of high rainfall. Poorly designed culvert systems and deep cross drainages, coupled with plugging of drainages by slope debris may also create saturated conditions in and above the road fills. Oversteepened backslope cuts remove support for the soils upslope. These conditions frequently result in serious slumps and short but destructive soil flows."

Fredericksen (1970) in comparing three watersheds on the Andrews Forest found that patch cutting with roads as is normally done produced mean annual soil losses equivalent to 0.11 inches over a nine year period. This was 109 times the loss on the control watershed, and was equivalent to a mean annual loss of 7,980 tons per square mile. The largest quantity (99%) of the soil loss occurred during years of landslide occurrence and it is important to note that the test span included periods of severe storms, two in December 1961 and a 100 year event in December 1964. Another heavy storm occurred in January 1965.

Comparison of the Andrews Experiments and the subject area is possible as conditions are comparable in some respects, although quantitative figures are not applicable across the board.

The test watershed in the Andrews Forest covered 250 acres, received 150% more precipitation than the planning area and lies 74 miles to the north. The combination of a small sampling area with geographic, climatic, and edaphic differences makes these study results chiefly valuable for their indication of differences of magnitude attributable to various cultural practices.

The abandonment of many procedures of the past in road location, design and construction has vastly improved the situation. Roads are being located on more advantageous topography and are being routed around unstable soils where possible. Sidecasting is being abandoned in favor of balanced roads or end hauling. Mulching and seeding of bared soil is standard practice, while culvert outfalls are being protected by half-round and plastic tube extensions. Slides are being stabilized as they occur during road construction rather than being simply sidecasted until they naturally stabilize.

It is certain that in spite of the best input of technical expertise, some failures will inevitably occur and some sediment will be produced.

Clearcutting produces slightly increased soil losses as indicated by Frederiksen (1970) on the Andrews Forest. There, clearcutting without roads produced an increase of 3.3 times the control which amounts to a loss of 0.0042 inches of soil per year. Compared with a loss on the control of 0.0012 inches per year.

Soils were disturbed in the Andrews Forest Experiment by high-lead logging. Ten percent of the area sustained deep soil disturbance while 9 percent was considered to be compacted (Dyrness 1967). This data is probably indicative of the expectations for the planning area.

Dry ravel is a source of soil motion in clearcuts and is particularly prevalent on steep south slope aspects. It occurs promarily on areas devoid of surface litter and vegetative cover. Cessation of this motion generally occurs by the second growing season after burning due to revegetation. (Mersereau, R. C. et al 1972).

Nutrient losses are also occasioned by clearcutting in some circumstances. Studies on the Andrews Forest showed that total nitrogen loss from clearcut and burned areas averaged 4.6 pounds per acre, compared with 0.16 pounds per acre under undisturbed conditions. Soil sediment was the source of 50 percent of the stream-borne nitrogen while dissolved (leached) nitrogen comprised the remainder. Nitrogen derived from rainfall, about 2 pounds per acre per year, nearly balanced that lost through leaching.

Other elements, calcium, magnesium, and potassium reached a high two years after logging and were declining in the third year. Phosphorus loss seems to be accelerated by burning.

Fire is a source of nutrient loss through volatilization, particularly nitrogen. Fire also causes nutrient losses by removing protective litter and vegetation which, in turn, permits dry ravelling and some splash erosion.

Removal of forest products results in a loss of nutrients to the site. Trees, however, contain a limited portion of the total available soil nutrients. A Washington study found a 35 year old Douglas-fir stand to contain about 10 percent of the available soil nitrogen. Further analysis showed that 24 percent was in the wood of the trunk, and 15 percent in the bark on the average. Twigs, needles, branches and roots contained the major portion of the tree's nutrient complement and this material generally is not removed from the site.

Of the total 113 pounds of nitrogen contained in the boles of one acre of these trees, 2 pounds per acre are replenished each year from rainfall alone. (Cole, et al 1967). Nitrogen fixation from such biological sources as Ceanothus velutinus has been found to add 23 pounds of nitrogen per acre per year to the site. (Fredericksen 1972).

Another example of the magnitude of nutrient loss attributable to removal of forest products can be had from a Alabama study. Nutrients in the following amounts per acre were contained in the stems of a 20 year old loblolly pine stand: nitrogen 76 pounds, phosphorus 12 pounds, potassium 51 pounds, calcium 37 pounds and magnesium 13 pounds. (Switzer et al 1968). Another study on a loblolly pine site found the following nutrient reservoir to exist in the top 60" of soil: nitrogen 6000 pounds, phosphorus 3,000 pounds, potassium 42,000 pounds, calcium 17,000 pounds, and magnesium 10,000 pounds. There is continual replenishment of these reservoirs as well. (Marbut 1935).

Recreation use can increase sedimentation by streambank damage, soil compaction and runoff concentration by faulty trails locations. Conceivably some sediment can be produced from these sources also. Trails will cover an estimated 7 acres of surface. Use of trails by horses and deer will produce a concentration of fecal nutrient material which will occasionally find its way into streams. Other adverse impacts will be smoke from campfires and diesels, and dislocations in some wildlife use.

In summary, research indicates that no long-term deterioration of forest soils nutrients or productivity is occurring. Such expected impacts as an increase in sedimantation on a temporary basis, the appearance of some logging debris in streamcourses, temporary increases in stream nutrient levels and other effects as identified in the preceding text are not of a duration or magnitude as to make them unacceptable.

F. Relationship Between Short-Term Use and Long-Term Productivity

1. Soil

Soil loss does occur following road construction but conditions usually normalize 3-4 years after construction.

Investigators vary widely in their assessment of slash burning effects on soil. This is probably attributable to widely varying conditions. Some movement is attributed to burning of stream bottom slash which then permits movement of trapped sediment.

Little increase in sediment production has been found due to high lead logging.

Long-term fertility is likely unaffected by slash burning and timber removal. Nitrogen is lost from the litter layer by burning, but this layer is apparently reformed to a point of equilibrium within 30 years. Total nitrogen loss is roughly equivalent to one commercial application - enough to accelerate growth for 5 to 10 years.

Compaction likewise, is dealt with by normal soil processes and structure is restored in a number of years.

2. Water

Minor changes are possible in timing of run-off due to compaction, and interception and concentration of flow by roads.

Minor local temporary degradation of water quality is expected. Under severe conditions, quality degradation above normal levels may occur due to man's activities. Long-term watershed productivity and characteristics will remain unaltered.

3. Air

Local temporary degradation can occur due to slash burning, diesels or large numbers of campfires under poor mixing conditions. No largescale or lasting effects are probable.

4. Recreation

People use will destroy some solitude, damage vegetation and compact soil in limited areas. A few will litter, soil and vandalize structures and natural features, but the productivity and attractiveness of the area will remain. Sites could be removed and the area restored to natural conditions.

5. Timber

Harvest and management of timber starting now will maintain long-term productivity and increase the total wood produced through time by salvaging decaying material and maintaining the remaining stand at a high level of productivity.

G. Irreversible and Irretrievable Commitments of Resources

Road rock and asphalt used in surfacing, recreation construction materials, and administrative effort expended are some irreversible and irretrievable commitments. Benching and filling for roads on steep ground are largely permanent commitments.

Land involved in right-of-way is mostly non-productive, but this is largely offset by increased production adjacent to the right-of-way.

Recreation sites are fairly firm commitments which alter vegetation and soil and greatly reduce timber production on the site and in the surrounding area.

Timber production is reduced somewhat in scenic zones also and increased productive potential foregone now is, in effect, irretrievable.

Loss of soil, particularly in the first few years following road construction, is deleterious to the upland involved but perhaps somewhat offset by increasing the fertility of alluvial valley lands.

Old growth cutting will result in some management options being foreclosed from future populations.

H. Preferred Action Based Upon the Environmental Analysis

Preferred action generally follows the course chosen in the plan. The road net should be kept as widely spaced as possible with low standard roads. Greater emphasis could be put on making use of logging systems which cover great distances between tree and landing and yard logs free of the ground, economically, from partial cuts as well as clearcuts.

Restriction of hauling on rocked and unsurfaced roads during periods of heavy precipitation will aid in water quality maintenance. Private rights-of-way over Government lands should be subject to the same restrictions as applicable to Federal projects.

Contract administration would be made more effective by increasing manpower and incorporating punitive measures for contractual violations.

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APPENDIX

[CHAPTER 876]

AN ACT

August 28, 1937
[H. R. 7618]
[Public, No. 405]

Relating to the revested Oregon and California Railroad and reconveyed Coos Bay Wagon Road grant lands situated in the State of Oregon.

Revested Oregon-California Railroad, etc., grant lands.
39 Stat. 218; 40 Stat. 1179.
Conservation management of timberlands, etc., under Federal jurisdiction.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That notwithstanding any provisions in the Acts of June 9, 1916 (39 Stat. 218), and February 26, 1919 (40 Stat. 1179), as amended, such portions of the revested Oregon and California Railroad and reconveyed Coos Bay Wagon Road grant lands as are or may hereafter come under the jurisdiction of the Department of the Interior, which have heretofore or may hereafter be classified as timberlands, and power-site lands valuable for timber, shall be managed, except as provided in section 3 hereof, for permanent forest production, and the timber thereon shall be sold, cut, and removed in conformity with the principal[1] of sustained yield for the purpose of providing a permanent source of timber supply, protecting watersheds, regulating stream flow, and contributing to the economic stability of local communities and industries, and providing recreational facilties[1]: *Provided*, That nothing herein shall be construed to interfere with the use and development of power sites as may be authorized by law.

Proviso.
Power sites.

Annual cut pending determination of productive capacity.

The annual productive capacity for such lands shall be determined and declared as promptly as possible after the passage of this Act, but until such determination and declaration are made the average annual cut therefrom shall not exceed one-half billion feet board measure: *Provided*, That timber from said lands in an amount not less than one-half billion feet board measure, or not less than the annual sustained yield capacity when the same has been determined and declared, shall be sold annually, or so much thereof as can be sold at reasonable prices on a normal market.

Proviso.
Sales.

Forest units.

If the Secretary of the Interior determines that such action will facilitate sustained-yield management, he may subdivide such revested lands into sustained-yield forest units, the boundary lines of which shall be so established that a forest unit will provide, insofar as practicable, a permanent source of raw materials for the support of dependent communities and local industries of the region; but until such subdivision is made the land shall be treated as a single unit in applying the principle of sustained yield: *Provided*, That before the boundary lines of such forest units are established, the Department, after published notice thereof, shall hold a hearing thereon in the vicinity of such lands open to the attendance of State and local officers, representatives of dependent industries, residents, and other persons interested in the use of such lands. Due consideration shall be given to established lumbering operations in subdividing such lands when necessary to protect the economic stability of dependent communities. Timber sales from a forest unit shall be limited to the productive capacity of such unit and the Secretary is authorized, in his discretion, to reject any bids which may interfere with the sustained-yield management plan of any unit.

Proviso.
Hearings before establishment of boundaries.

Sales limited to productive capacity.

Cooperative agreements.

SEC. 2. The Secretary of the Interior is authorized, in his discretion, to make cooperative agreements with other Federal or State forest administrative agencies or with private forest owners or operators for the coordinated administration, with respect to time, rate, method of cutting, and sustained yield, of forest units comprising parts of revested or reconveyed lands, together with lands in private ownership or under the administration of other public agencies, when by such agreements he may be aided in accomplishing the purposes hereinbefore mentioned.

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[1] So in original.

Classification, etc., of lands suitable for agricultural purposes.
48 Stat. 1274.
43 U. S. C. § 1171.

SEC. 3. The Secretary of the Interior is authorized to classify, either on application or otherwise, and restore to homestead entry, or purchase under the provisions of section 14 of the Act of June 28, 1934 (48 Stat. 1269), any of such revested or reconveyed land which, in his judgment, is more suitable for agricultural use than for afforestation, reforestation, stream-flow protection, recreation, or other public purposes.

Reclassification of, as timber lands.

Any of said lands heretofore classified as agricultural may be reclassified as timber lands, if found, upon examination, to be more suitable for the production of trees than agricultural use, such reclassified timber lands to be managed for permanent forest production as herein provided.

Leasing for grazing.

Provisos.
Use of receipts.

Rules and regulations.

SEC. 4. The Secretary of the Interior is authorized, in his discretion, to lease for grazing any of said revested or reconveyed lands which may be so used without interfering with the production of timber or other purposes of this Act as stated in section 1: *Provided*, That all the moneys received on account of grazing leases shall be covered either into the "Oregon and California land-grant fund" or the "Coos Bay Wagon Road grant fund" in the Treasury as the location of the leased lands shall determine, and be subject to distribution as other moneys in such funds: *Provided further*, That the Secretary is also authorized to formulate rules and regulations for the use, protection, improvement, and rehabilitation of such grazing lands.

Secretary of the Interior; powers and duties.

Consultation with Oregon State Board of Forestry.

SEC. 5. The Secretary of the Interior is hereby authorized to perform any and all acts and to make such rules and regulations as may be necessary and proper for the purpose of carrying the provisions of this Act into full force and effect. The Secretary of the Interior is further authorized, in formulating forest-practice rules and regulations, to consult with the Oregon State Board of Forestry, representatives of timber owners and operators on or contiguous to said revested and reconveyed lands, and other persons or agencies interested in the use of such lands.

With other agencies.

Proviso.
Fire protection provisions.

In formulating regulations for the protection of such timberlands against fire, the Secretary is authorized, in his discretion, to consult and advise with Federal, State, and county agencies engaged in forest-fire-protection work, and to make agreements with such agencies for the cooperative administration of fire regulations therein: *Provided*, That rules and regulations for the protection of the revested lands from fire shall conform with the requirements and practices of the State of Oregon insofar as the same are consistent with the interests of the United States.

Title II.

TITLE II

Oregon and California land-grant fund.

That on and after March 1, 1938, all moneys deposited in the Treasury of the United States in the special fund designated the "Oregon and California land-grant fund" shall be distributed annually as follows:

Payments to counties.
39 Stat. 218.

(a) Fifty per centum to the counties in which the lands revested under the Act of June 9, 1916 (39 Stat. 218), are situated, to be payable on or after June 30, 1938, and each year thereafter to each of said counties in the proportion that the total assessed value of the Oregon and California grant lands in each of said counties for the year 1915 bears to the total assessed value of all of said lands in the State of Oregon for said year, such moneys to be used as other county funds.

Money in lieu of accrued taxes.
44 Stat. 915.

(b) Twenty-five per centum to said counties as money in lieu of taxes accrued or which shall accrue to them prior to March 1, 1938, under the provisions of the Act of July 13, 1926 (44 Stat. 915), and which taxes are unpaid on said date, such moneys to be paid to said counties severally by the Secretary of the Treasury of the United States, upon certification by the Secretary of the Interior, until such tax indebtedness as shall have accrued prior to March 1, 1938, is extinguished.

Amount to satisfy reimbursable charges against fund.

Proviso.
Paying deficiencies in county payments.
44 Stat. 915.

Payments to counties after charges reimbursed.

From and after payment of the above accrued taxes said 25 per centum shall be accredited annually to the general fund in the Treasury of the United States until all reimbursable charges against the Oregon and California land-grant fund owing to the general fund in the Treasury have been paid: *Provided*, That if for any year after the extinguishment of the tax indebtedness accruing to the counties prior to March 1, 1938, under the provisions of Forty-fourth Statutes, page 915, the total amount payable under subsection (a) of this title is less than 78 per centum of the aggregate amount of tax claims which accrued to said counties under said Act for the year 1934, there shall be additionally payable for such year such portion of said 25 per centum (but not in excess of three-fifths of said 25 per centum), as may be necessary to make up the deficiency. When the general fund in the Treasury has been fully reimbursed for the expenditures which were made charges against the Oregon and California land-grant fund said 25 per centum shall be paid annually, on or after June 30, to the several counties in the manner provided in subsection (a) hereof.

Amount for administrative purposes; excess covered in.

Proviso.
Use of moneys covered in.

(c) Twenty-five per centum to be available for the administration of this Act, in such annual amounts as the Congress shall from time to time determine. Any part of such per centum not used for administrative purposes shall be covered into the general fund of the Treasury of the United States: *Provided*, That moneys covered into the Treasury in such manner shall be used to satisfy the reimbursable charges against the Oregon and California land-grant fund mentioned in subsection (b) so long as any such charges shall exist.

Conflicting laws repealed.

All Acts or parts of Acts in conflict with this Act are hereby repealed to the extent necessary to give full force and effect to this Act.

Approved, August 28, 1937.

NORTH UMPQUA RECREATION FACILITIES

Agency Site	Facilities Picnic	Tent	Trailer	Drinking Water	Remarks
Oregon State					
Susan Cr. State Park	30	None	31	Yes	
Douglas County					
Lone Rock Wayside	2	None	None	No	
Cable Crossing	4	None	None	No	
V. T. Jackson W. Side	3	None	None	No	
The Narrows	2-3	None	None	No	
R. G. Baker Memorial	25	None	None	Yes	
Smith Springs	12	None	None	No	
Whistler's Bend[1]	30	18	6	Yes	
BLM					
Lone Rock	6	None	None	Yes	
Millpond[2]	26	None	11	Yes	
Rock Creek[3]	9	8	7	Yes	
USFS[4] North Umpqua Composite					
Apple Creek	None	7	2	No	
Bogus Creek	9	15	2	Yes	
Boulder Flat	3	6	4	No	
Canton Creek	8	None	None	Yes	Swimming Interp. Site
Colliding Rivers	None	None	None	Yes	
Eagle Rock	6	16	8	Yes	
Fall Creek	None	None	None	No	Trail Head
Horseshoe Bend	None	17	18	Yes	
Island	1	6	2	No	
East to Diamond Lake					
Lake Creek Picnic Ground	7	None	None	-	
Toketee Lake	None	None	18	-	
Watson Falls	12	None	None	-	
Weeping Rocks Picnic Ground	8	None	None	No	
Whitehorse Falls	4	5	None	-	
Williams Creek	None	2	None	No	
Wright Creek	2	None	None	No	

[1] 15 miles east of Roseburg

[2] 5 miles up Rock Creek

[3] 7.3 miles up Rock Creek

[4] All USFS sites listed are east of the study area extending to the north end of Diamond Lake.

MANAGEMENT PLAN AREA SOILS

Soils

Soils in the scenic corridor along the North Umpqua are developing from volcanic rocks. Most of the soils are underlain by tuffs, breccias, andesite, and basalt.

A general soil report and soil map are available for the corridor. The report basically points out there are two broad classes of soils in the corridor. They are the dry soils (xeric) and the moist soils.

Xeric Soils

The dry soils are in the rain shadow caused by Shivigny and Thunder Mountains. They are found in the lower stretches of Susan, Honey, and Hill Creeks. They make up 22% of the corridor. There are two basic groups of dry soils. They are the red clay soils and the brown gravelly loam soils. The red clay soils compact easily when moist. Reforestation records on the red soils show there is a 50% chance of success from the first planting. Grass competition and high soil temperatures seem to be the major causes for failure. The brown gravelly loam soils have a severe reforestation problem on south aspects. High soil temperatures and low moisture are the causes for failure.

Few road failures occur from the xeric soils.

Moist Soils

The moist soils make up 67% of the corridor. There are three basic groups of soil in this category. They are the red clay soils, deep brown soils, and the brown gravelly loam soils. These soils have the same appearance as the dry ones. (Climate is the main factor in separating moist from xeric soils.)

The moist red clays are highly productive, easily compacted, and easily reforested. The deep brown loam soils occur as pockets on the landscape. They occur frequently on 50-60% slopes. When these pockets are cut by roads on steep slopes, failures may occur. The cut banks slide and in some cases the subgrade also sluices out. In many cases, these soils can be avoided or failures greatly minimized by reducing amount of road cut and application of soil stabilizing measures.

The brown gravelly loam soils occur on steep slopes. Reforestation on south slopes can be a problem on these soils.

On all the proposed roads in the corridor the soils should be investigated. This has been done for the Bob Butte Access Road and several spur roads. An effort is being made to avoid unstable soils and fit the road to the land.

PLANNING AREA STREAMS

The following streams have been tabulated from USGS quadrangle maps:

North Bank

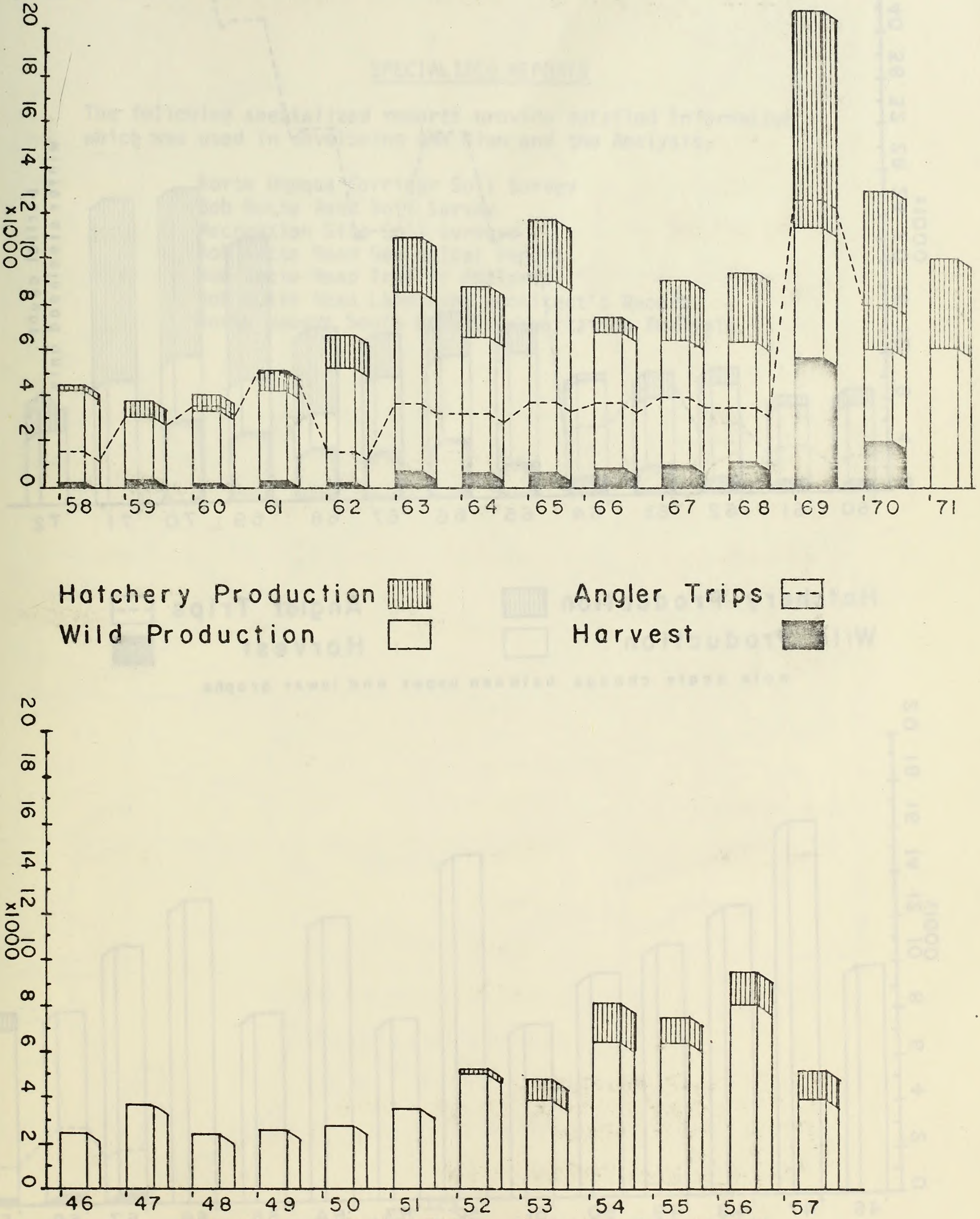
Stream Name	Total Livewater*	Anadromous Fish Use	Resident Fish Use
Bradley Cr.[1]	20,000[1]	6,000[1]	17,600**
French Creek[2]	19,800	10,600	15,500
	7,750	0	0
Hill Creek	11,200	0	0
Clay Creek	6,100	0	0
Honey Creek	41,500	6,400	19,000
Hogback Cr.[3]	6,500	0	0*
Susan Cr.	56,950	4,200	15,100
Cedar Creek	3,000	0	0

South Bank

Stream Name	Total Livewater*	Anadromous Fish Use	Resident Fish Use
Britt Creek	16,500	0	13,500
	4,500	0	0
	16,500	0	0
Rocky Run	15,000	0	0
Bob Creek	19,400	0	2,700
	8,000	0	0
	6,000	0	0
	4,500	0	0

[1] Watershed all private
[2] Watershed all private but upper portion
[3] Intermittent stream
*Lineal feet
**Generally small cutthroat trout

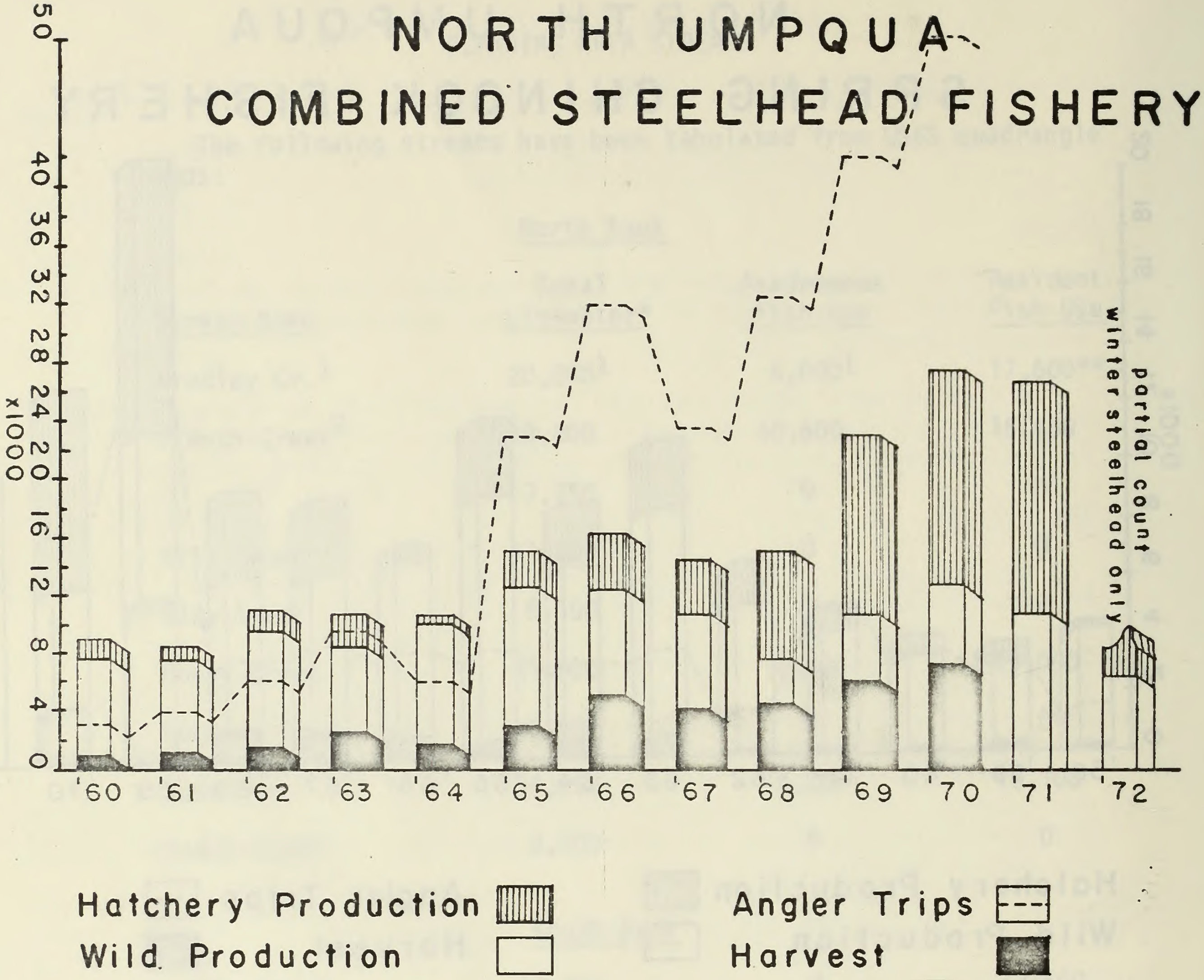
NORTH UMPQUA
SPRING CHINOOK FISHERY



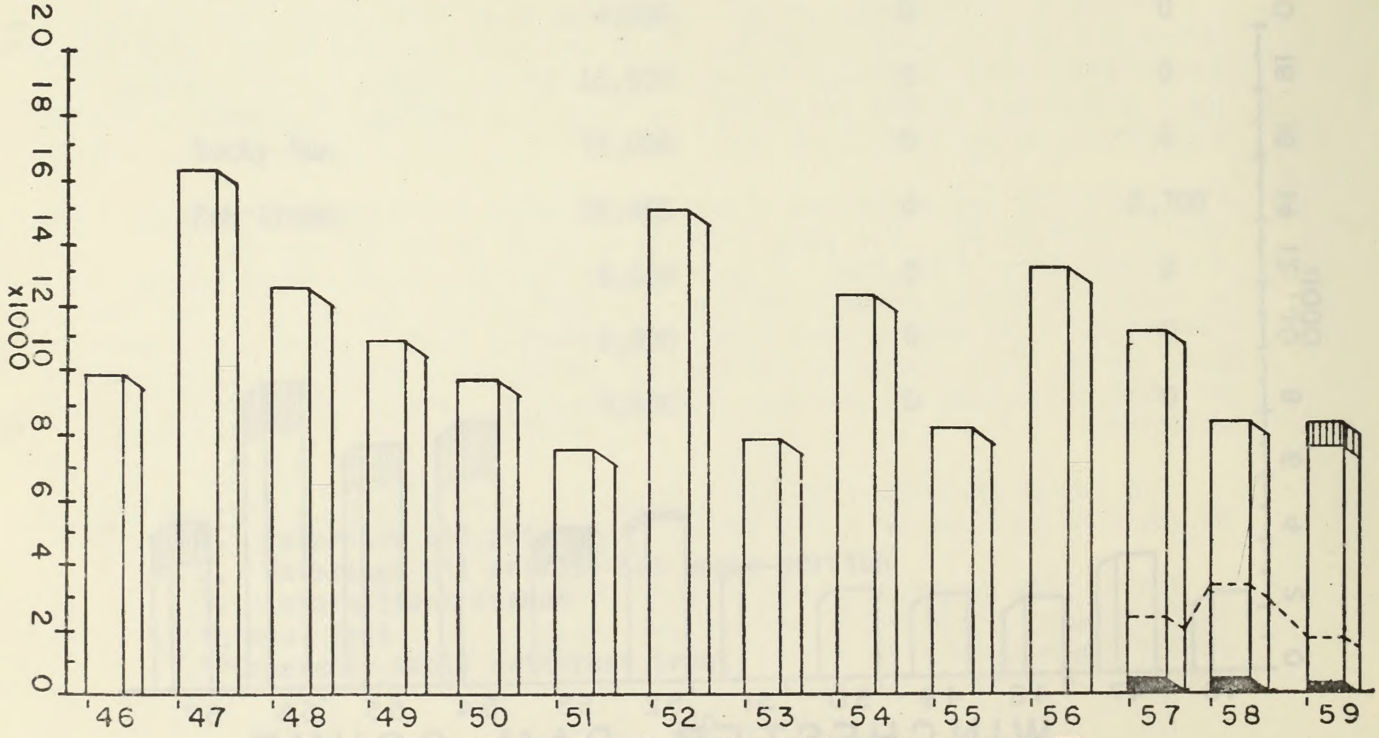
WINCHESTER DAM COUNT

Source: Oregon State Game Comm.

NORTH UMPQUA COMBINED STEELHEAD FISHERY



note scale change between upper and lower graphs



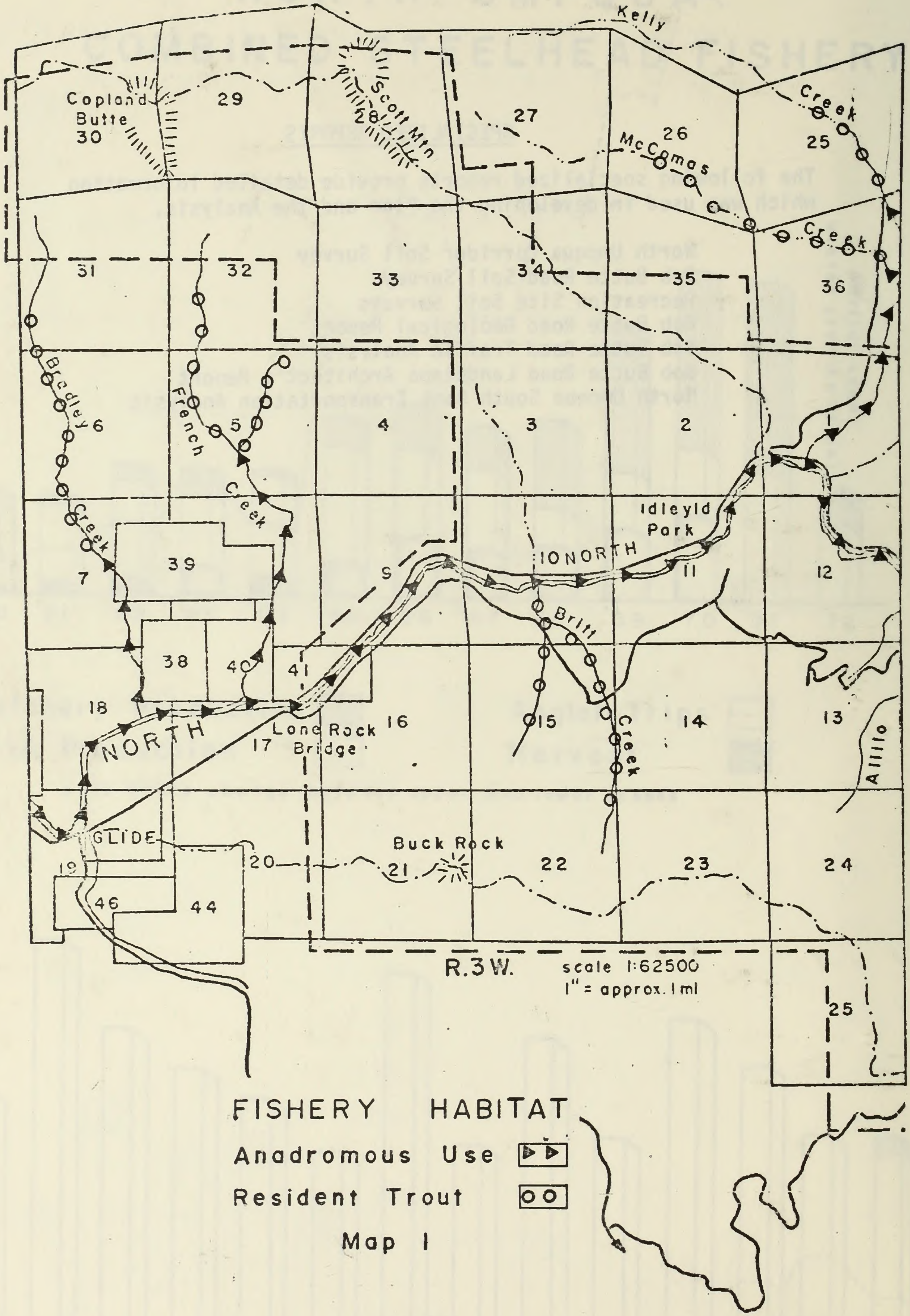
WINCHESTER DAM COUNT

Source: Oregon State Game Comm.

SPECIALIZED REPORTS

The following specialized reports provide detailed information which was used in developing the Plan and the Analysis.

North Umpqua Corridor Soil Survey
Bob Butte Road Soil Survey
Recreation Site Soil Surveys
Bob Butte Road Geological Report
Bob Butte Road Traffic Analysis
Bob Butte Road Landscape Architect's Report
North Umpqua South Bank Transportation Analysis

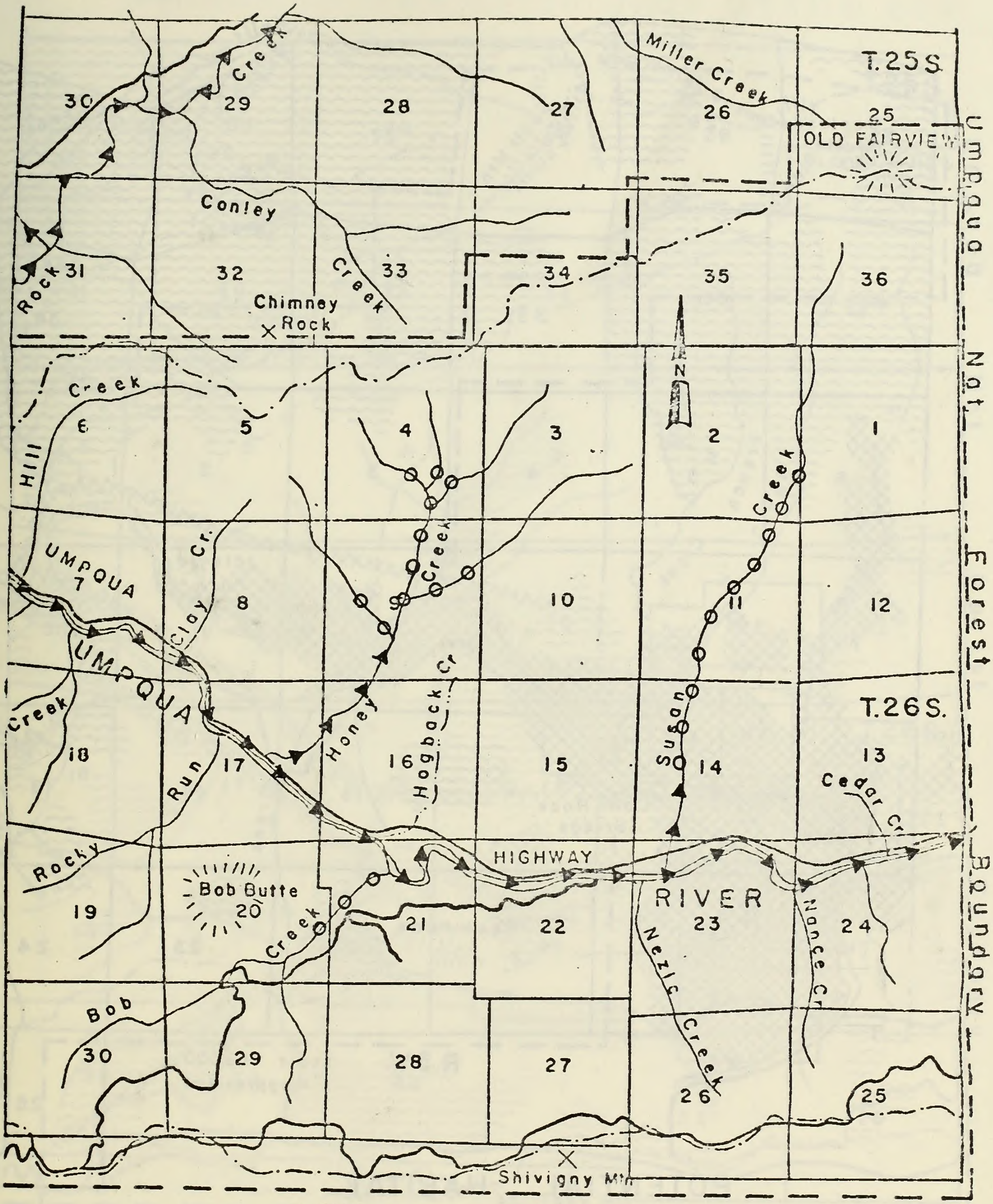


FISHERY HABITAT

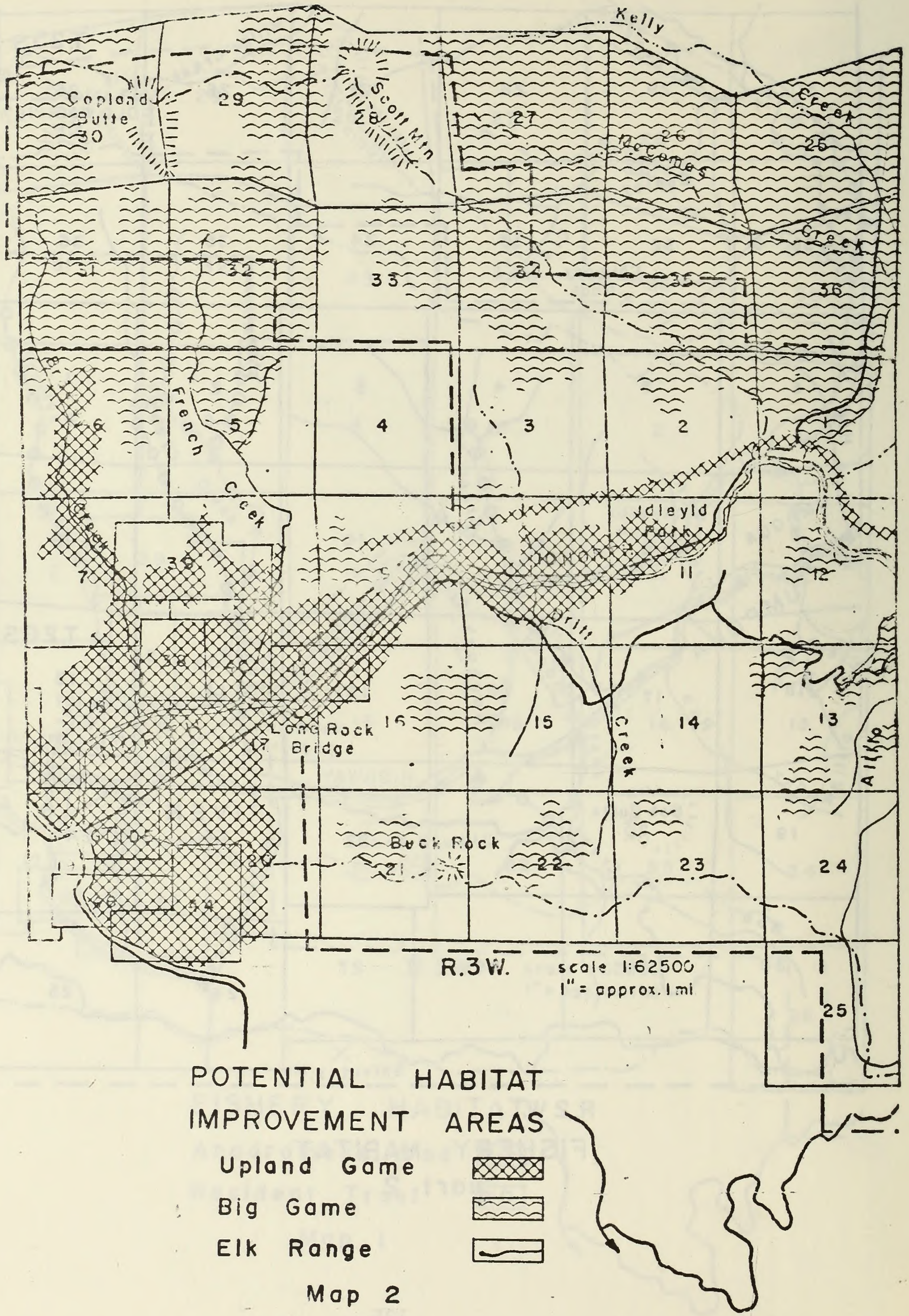
Anadromous Use ▶▶

Resident Trout ○○

Map 1

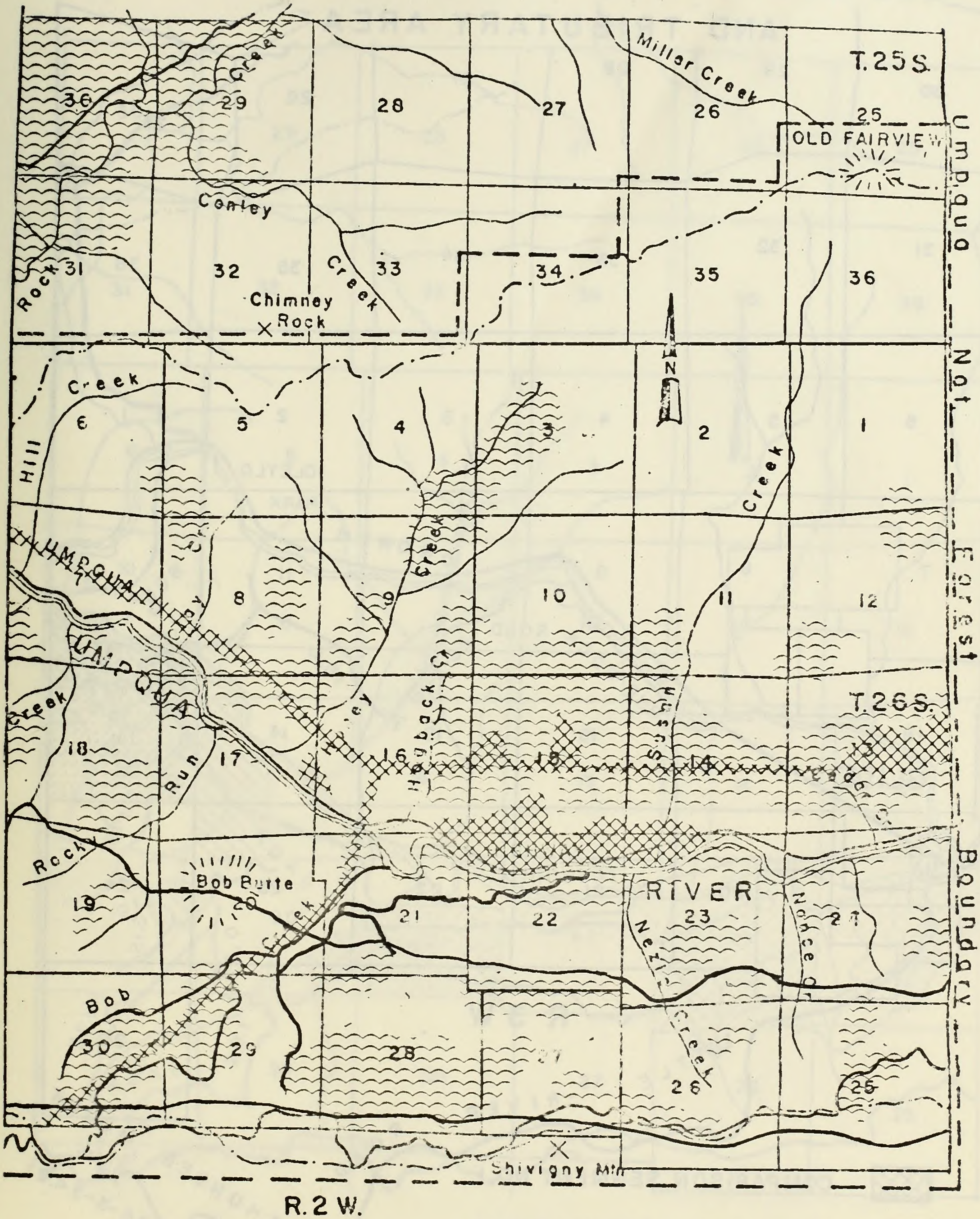


FISHERY HABITAT
part 2



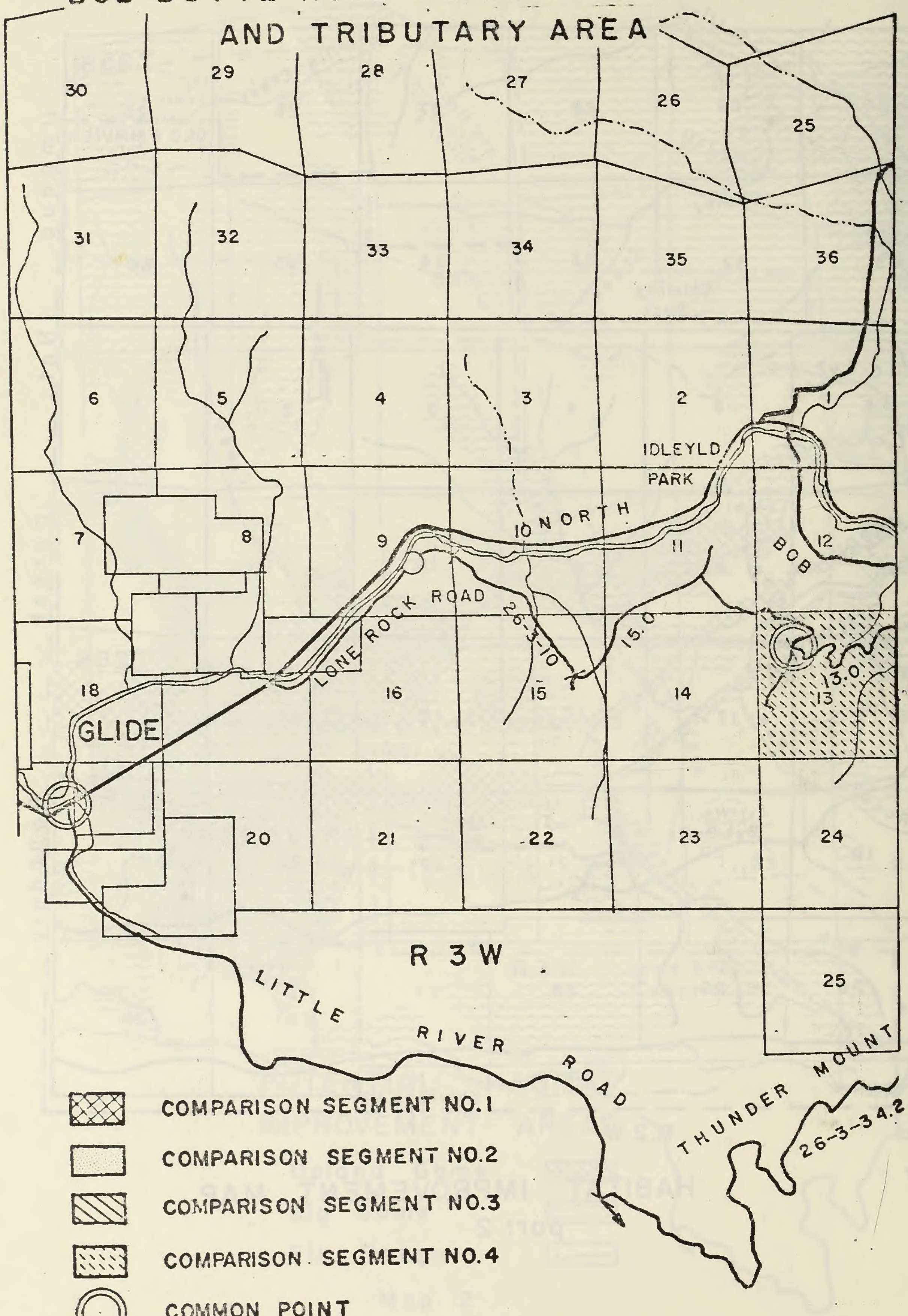
POTENTIAL HABITAT IMPROVEMENT AREAS

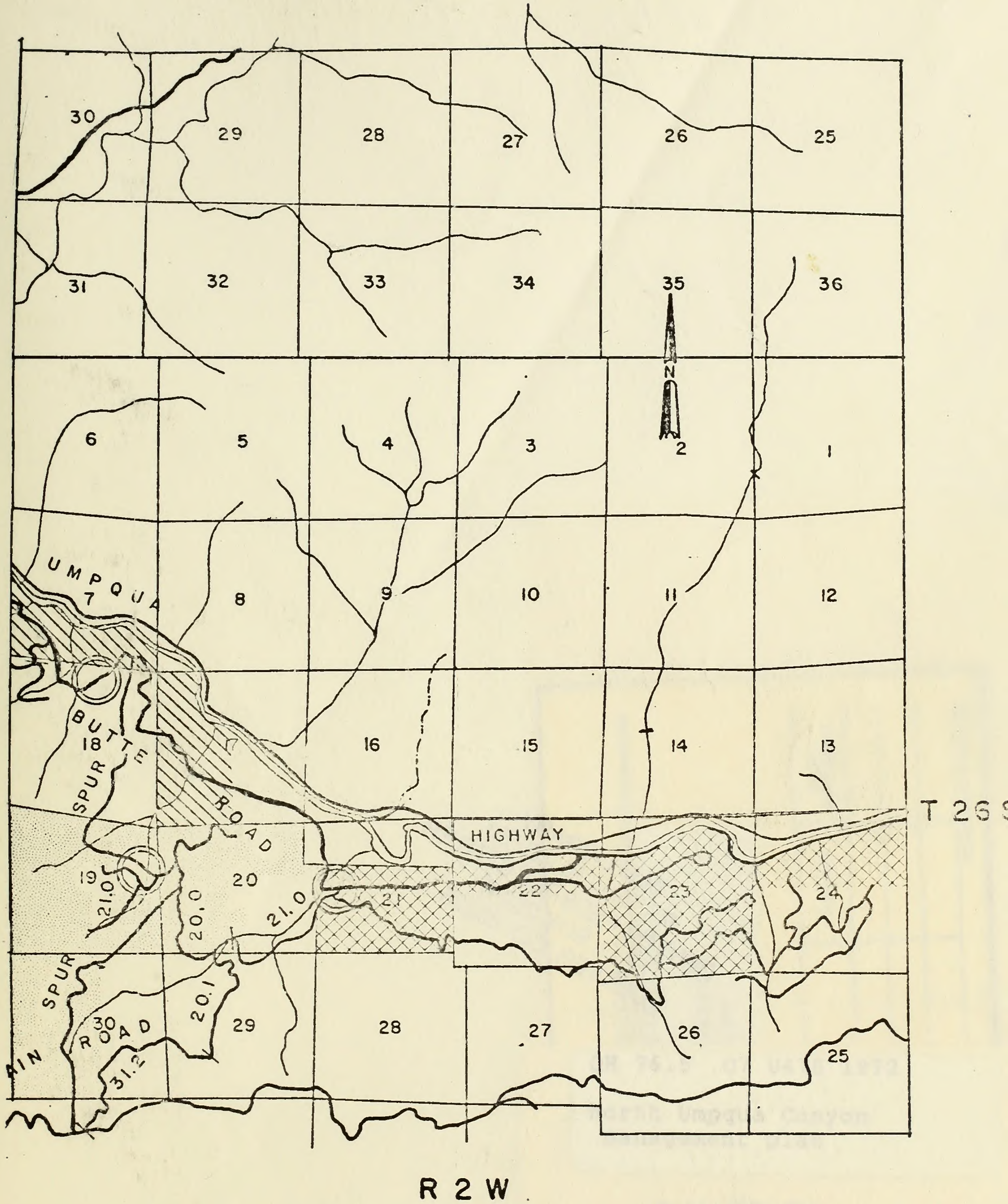
Map 2



HABITAT IMPROVEMENT MAP
part 2

BOB BUTTE ROAD ALTERNATIVE ROUTES AND TRIBUTARY AREA

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North Umpqua Canyon
management plan

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